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Annual Report

1987-88

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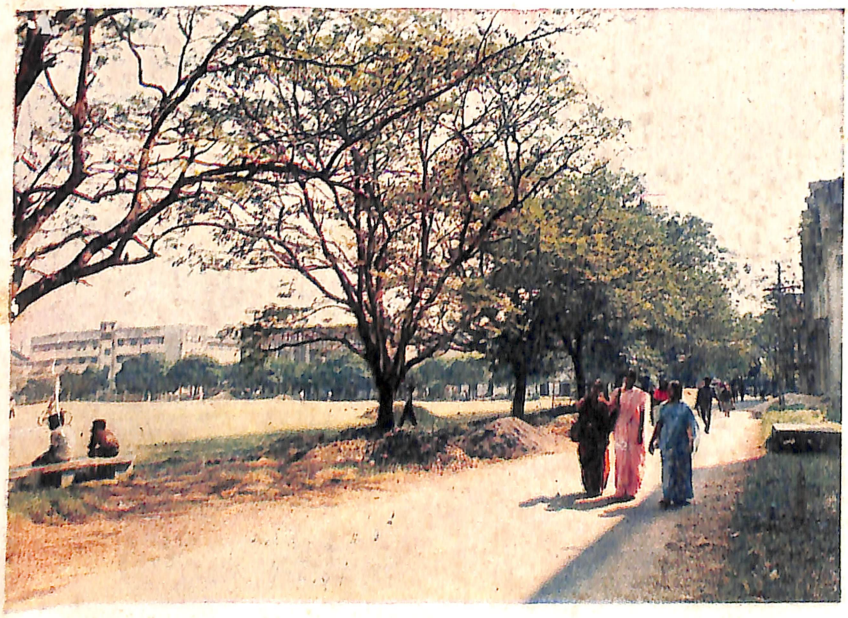

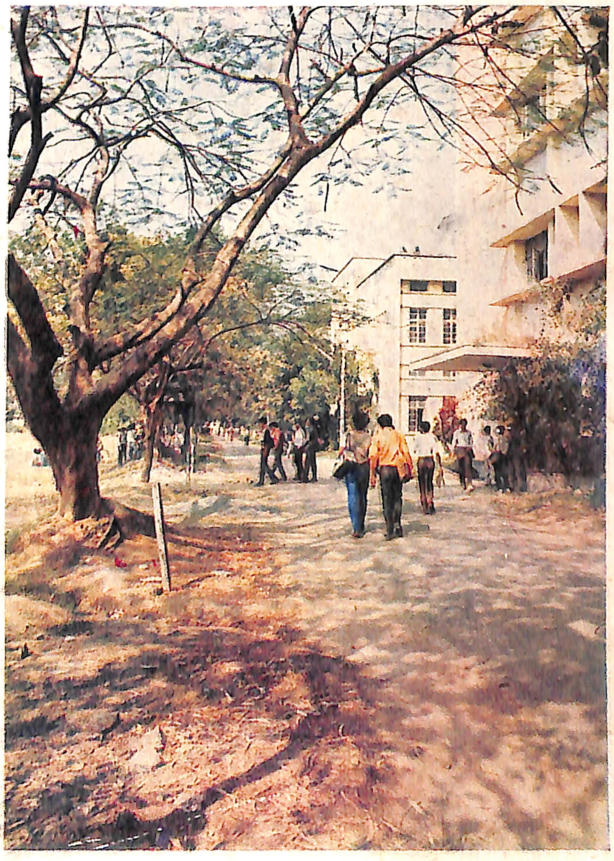

JADAVPUR UNIVERSITY
CALCUTTA 700 032
INDIA

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CALCUTTA-700 032
INDIA

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FOREWORD

Jadavpur University is the direct descendant of the National Council of Education, Bengal, which is itself the result of an urge of people like Rabindranath Tagore, Sri Aurobindo and others to develop a model institution where education would mean not merely distribution of degrees and certificates but a means of enlightenment that would induce the students and teachers alike to get integrated with and bring fruition to the national aspirations to uplift India of the poor and oppressed to a modern India where development would mean an ideal of material and spiritual growth. Not a giant, though, Jadavpur University, a unitary University by nature, born out of these traditions on December 24, 1955 through the efforts of Dr. B. C. Roy, the first Chancellor of the University and Dr. Triguna Sen, the first Vice-Chancellor, has been trying in its own way to contribute to the spread of this type of new education. In profound gratitude, we recall the great names of Satish Chandra Mukherjee, Hirendra Nath Datta, Tarak Nath Palit, P. C. Ray, Abdul Rasul, Gooroodas Banerjee, Benoy Kumar Sarkar, and host of others who embellished the University in one form or other.

INTRODUCTION

Established in 1955, the Jadavpur University has already acquired a high reputation as one of the foremost Universities of India. It has the unique characteristics of combining higher studies and research in three faculties of Arts, Engineering & Technology and Science on the same campus under a common administration. Being a unitary University it concentrates its efforts on the co-ordination and development of higher studies and research in all the three faculties.

A brief reference may be made to some of the important academic reports in the life of the University during the year under review :

The UGC identified the department of Sanskrit under Special Assistance Scheme and sanctioned Rs. 30.00 lacs. The department of Civil Engineering was provided by the U.G.C. with a grant of Rs. 37.53 lacs under the scheme of strengthening of Infrastructure in Science & Technology (COSIST). The U.G.C. has also identified the departments of Physics and Chemistry under COSIST programme with a sanction of Rs. 21.00 lacs & Rs. 59.75 lacs respectively. During the year under report the departments of Economics, International Relations and Comparative Literature have been approved by U.G.C. under Special Assistance programme (DSA) with grants of Rs. 17.25 lacs, Rs. 13.75 lacs and Rs. 15.40 lacs respectively. Additional grant of Rs. 73.50 was released by the U.G.C. for purchase of equipment and books and journals and for buildings as special assistance. Following schemes were approved by the Ministry of Human Resource & Development, Govt. of India, during the year.

Modernisation of equipment for Civil Engg.	Rs. 20.00 lacs (NR)
Modernisation of equipment for Machine Tool Lab. (Mech. Engg.)	Rs. 20.00 lacs (NR)
Modernisation of equipment for Electrical Engg. Lab.	Rs. 15.00 lacs (NR)
Industrial Instrumentation Lab. and Micro-processor based Industrial Electronics Lab.	Rs. 15.00 lacs (NR)
Establishment of an Interdisciplinary Centre of Transport Studies	Rs. 10.00 lacs (NR)
Flexible Automation (CAM)	Rs. 30.00 lacs (NR)
Augmentation of Product Development	Rs. 11.50 lacs (NR)
Laboratory for Silicon Technology	Rs. 10.00 lacs (NR)
Maintenance Engineering & Tribiology	Rs. 5.25 lacs (NR)
Development of Remote Sensing Technology for—	
Natural Resource Management and Monitoring of Environmental Pollution	Rs. 20.00 lacs (NR)
Increased intake in Computer Science	Rs. 12.00 lacs (NR) Rs. 2.00 lacs (R)
Microprocessor Applications	Rs. 7.00 lacs (R)
Robotics	Rs. 7.00 lacs (R)
Energy Sciences	Rs. 4.00 lacs (R)
Modernisation of Equipment for Food Technology & Bio-Chemical Engineering Deptt.	Rs. 15.00 lacs (R)

Reference may be made to the receipt of fund from different agencies for Major Research Schemes and Projects :

Development of Optoelectronics Source—Detector System for Fibre Optic application—Deptt. Electronics & Telecom. Engg. (sanctioned by Deptt. of Electronics [DOE], Govt. of India)	Rs. 14.46 lacs(NR/R)

Development of Optical Power Meter and Test Set up for Optical Fibre—Deptt. of Electronics & Telecom. Engg. (sanctioned by Deptt. of Electronics, Govt. of India) Rs. 9.74 lacs (NR/R)

Development of an Integrated Rice Bran Stabilisation unit using steaming and fluidised bed drying—Deptt. of Food Technology & Bio-Chemical Engg. (sanctioned by ICAR) Rs. 4.03 lacs (NR/R)

Development of Robotic Vision and Cripper Sensors—Deptt. of Production Engg. (sanctioned by DST, Govt. of India) Rs. 17.99 lacs (NR/R)

Conduction of Technical Training Programme (short-term) (sanctioned by the Ministry of Sc. & Tech., Govt. of India) Rs. 20.40 lacs (NR/R)

The School of Bio-Science & Engineering was formally approved by the Executive Council. The School is working in the area of Biomaterials, Biomechanics, Modelling Biomembrane, Medical Instrumentation, Drug release and other related fields.

U.G.C. Winter School on 'Advanced Aspects of General Relativity, held in the Physics Department was planned to cover mainly the advanced aspects of the subject specially meant for those who had either completed or were at the final stage of completion of their Ph.D. work.

U.G.C. indentified Jadavpur University for collaborative Research Project with U.S. Institutions in the area of Philosophy of Science under an agreement signed between India and U.S.A. out of U.S. rupee holding in interest earning accounts.

The Physics Deptt. was identified by the U.G.C. for conducting orientation course for College Teachers in the Eastern region of India.

The Centre for Knowledge based System was established under the sponsorship of the Ministry of Human Resource Developmemt, Govt. of India. The Centre had set up in the Deptt. of Electrical Engg. Deptt. an A1 Labroratory facility with HP 9000/350 A.I.C., Appolo D.N. 3000 and NEXUX 3000 Computer Systems and various A1 Tools.

Jadavpur Universiy out of its own resources took up a Computer Aided Instruction (CAI) Project with the object to develop Courseware for Undergraduate/Post graduate students of the three faculties.

Contro' System Section of the Electrical Engg. Deptt. took up two projects entitled "Jupiter-one and Jupiter-two" under the sponsorship of Defence Research and Development Laboratory, (DRDL) at a total cost of Rs. 48.5 lacs in 1984. The project Jupiter-two was successfully completed. In this project Guidance Algorithm and Software package for the first flight PRITHVI missile was developed and it greatly contributed to the success of PRITHVI flight on February 2, 1988.

School of Material Science & Technology, an inter-disciplinary programme of action regarding advanced studies and research was adopted. Interaction was made with important centres of research like Vikram Sarabhai Space Centre, Indira Gandhi Centre of Atomic Research, etc.

Adult, Continuing Education & Extension Centre was identified as Regional Information in Management Unit with a view to developing effective information, storage and retrieval system for final analysis.

In accordance with the Area Development approach as delineated in the U.G.C. guideline on Adult, Continuing Education & Extension programmes which aimed at rationalising, consolidating and concentrating Adult Education and follow activities being undertaken by the Universities in a specific adopted area for obtaining better results in terms of utilisation of resources. The Centre decided to take up a detailed programme of activities in its adopted areas under Sonarpur Block, S-24 Pgs.

Detailed activities of the University during the year under review have been shown in subsequent chapters.

At the thirtysecond Convocation of the University held on 24th December 1987—2124 students took their respective degrees in which there were Ph.D.–98, M.Phil.–42, M.A.–400, M.E./M.Tech.–65, M.Sc.–115, B.A.–265, B.Lib. & Inform. Sc.–46, B.Ed. and B.Ed. in Phy. Edn.–424, B.E.–519 and B.Sc.–150.

THE COURT

Chancellor	:	Professor Nurul Hasan
Vice-Chancellor	:	Prof. Sankar Kumar Sen
Secretary, Education Deptt. Govt. of West Bengal (Ex-officio)	:	Secretary, Education Deptt., Govt. of West Bengal.
Secretary, Finance Deptt. Govt. of West Bengal (Ex-officio)	:	Secretary, Finance Deptt., Govt. of West Bengal.
Representative, Govt. of India	:	Shri S. N. Chakraborti Dy. Educational Adviser (T) Govt. of India.
Dean, Faculty of Arts (Ex-officio)	:	Prof. Jayantanuja Bandyopadhyaya
Dean, Faculty of Engg. & Technology (Ex-officio)	:	Prof. Pijush Som
Dean, Faculty of Science (Ex-officio)	:	Prof. Amalendu Choudhury
Institutions affiliated to the University	:	Dr. P. Duari Principal Jadavpur Vidyapith College of Education Sm. Bani Sen (resigned) Dr. Jharna Sen Gupta (w.e.f. 24. 7. '87) Principal, Sm. J. D. Birla Institute of Home Science.
President, West Bengal Council of Higher Education (Ex-officio)	:	Sm. Anila Devi
President, West Bengal Board of Secondary Education (Ex-officio)	:	Shri Ranju Gopal Mukhopadhaya
President, National Council of Education, Bengal (Ex-officio)	:	Shri Sourindra Nath Datta
Nominee of All India Council of Technical Education	:	Prof. Ashoke Chandra Chairman, AICTE, Educational Adviser (Tech.), Govt. of India
Teachers—elected (FET)	:	Prof. Manish Kr. Mukherjee Prof. Sujay Basu Prof. Krishna Prasanna Majumdar Sri Samir Kumar Rakshit
Teachers—elected (Faculty of Arts)	:	Prof. Debabrata Mukherjee Sri Arun Kr. Mukherjee Sm. Sipra Sarkar Prof. Prabir Roy Choudhury Sri Debesh Chandra Chakravorty
Teachers—elected (Faculty of Science)	:	Prof. Kripasindhu Chaudhuri Sri Bidhan Chandra Bhattacharyya Sri Nripesh Chandra Ghosh Sri Pranab Kumar Bhattacharyya Sri Ashok Nath Basu

Teachers—elected (affiliated colleges)	:	Sm. Lilu Marcha Sm. J. D. Birla Institute of Home Science
	:	Sm. Sakuntala Srinivasan Sm. J. D. Birla Institute of Home Science
Registered Graduates (elected)	:	Sri Subodh Kumar Bose Sri Tapas Basu Sri Dilip Kumar Chakraborti Sri Shantanu Goswami Sm. Shyamali Gupta Sri Menhajudir Laskar Sri Amal Kanti Majumdar Sri Baidyanath Mondal Sri Pabitra Prasad Sen Gupta Sri Shyamal Kumar Lahiri
Nominated member of W. B. Legislative Assembly	:	Sri Sachin Sen
Founder Donor (nominated)	:	Sm. Sumitra Roychoudhury
		Dr. Subhrangshu Acharyya
	:	Sri Samir Ch. Vasu Mallik
Elected members of NCE, Bengal	:	Dr. Pratul Chandra Gupta Sri Mohi Mohon Mukherjee Sri Haridas Nandy Sri Prabhat Kumar Sinha
Elected members of Non-teaching Staff	:	Sri Satya Ranjan Chakraborty Sri Nirendra Kumar Guha Chowdhury Sri Basudeb Mitra
Regd. Trade Union (nominated by Govt. of West Bengal)	:	Sri Monojpratim Ganguly
Primary School Teacher (nominated by Govt. of West Bengal)	:	Sri P. Das Gupta
Secondary School Teacher (nominated by Govt. of West Bengal)		Sri Malaybilas Bhattacharyya
Chancellor's nominee	:	Dr. Murari Mohan Mukherjee Prof. D. K. Dutta
Chairman, West Bengal Centre, Institution of Engineers, India (Ex-officio)	:	Sri Haridas Nandy Sri Arun Kumar Bhowmik (Retd.) Dr. Sankar Kumar Mukherjee (from 1. 8. '87)
Elected Officer of the University	:	Sri Bibhuti Bhusan Bhattacharyya
Elected Research Scholar	:	Sri Utpal Kumar Dutta
Elected from regular students	:	Sri Anindya Ghosh Sri Sugata Roy Sri Partha Pratim Biswas Miss Kajori Kargupta Sri Atin Das Sri Manas Maiti
Registrar (non-member Secretary)	:	Sri Arun Kumar Gupta

THE EXECUTIVE COUNCIL

Executive Members :

Vice-Chancellor	:	Prof. Sankar Kumar Sen
Secretary, Education Deptt., Govt. of West Bengal	:	Secretary, Education Deptt.
Secretary, Finance Deptt., Govt. of West Bengal	:	Secretary, Finance Deptt.
Deans of Faculty Councils for Post-graduate and Under-graduate Studies	:	Prof. Jayantanuja Bandyopadhyaya Dean, Faculty of Arts
		Prof. Pijush Som Dean, Faculty of Engg. & Technology
		Prof. Amalendu Choudhury Dean, Faculty of Science
President, West Bengal Council of H. S. Education	:	Sm. Anila Debi

Other Members :

Elected teachers of the University of whom not more than one shall be a Professor	:	Prof. Krishna Prasanna Majumdar Sri Samir Rakshit Prof. Kripasindhu Chaudhuri Sri Asoke Nath Basu
Elected Professor from the Faculty of Arts	:	Prof. Pranab Kumar Sen
Elected Professor from the Faculty of Engg. & Technology	:	Prof. Amitava Bhattacharyya
Elected Professor from the Faculty of Science	:	Prof. Nakul Chandra Das
Elected Reader or Lecturer of the University	:	Sri Mihir Ranjan Bhattacharyya Sri Subhas Basu Sri Anandadev Mukherjee
Elected Teacher under Faculty of Engg. & Technology	:	Prof. Arun Kumar Bhowmik (Retired) Prof. Sankar Kumar Mukherjee (from 6. 1. 88)
Elected persons other than teachers, students, and non-teaching staff of the University of whom three shall be registered graduates	:	Prof. Amal Kanti Majumdar Sri Monojpratim Ganguly Sri Malaybilas Bhattacharyya Sri Sachin Sen Dr. Dilip Kumar Chakraborti Sri Tapas Basu
Officer of the University	:	Sri Bibhuti Bhusan Bhattacharyya
Non-teaching staff of the University	:	Sri Nirendra Kumar Guha Choudhury Sri Satya Ranjan Chakraborty
Nominee of the Chancellor	:	Dr. (Mrs.) Ashima Chatterjee
Students of the University	:	Sri Partha Pratim Biswas Sri Saugata Roy
Registrar (non-member Secretary)	:	Sri Arun Kumar Gupta

WORKING COMMITTEE

Vice-Chancellor	:	Prof. Sankar Kumar Sen
Dean, Faculty of Arts	:	Prof. Jayantanuja Bandyopadhyaya
Dean, Faculty of Engg. & Technology	:	Prof. Pijush Som
Dean, Faculty of Science	:	Prof. Amalendu Choudhury
Nominated members of the Executive Council	:	Prof. Krishna Prasanna Majumdar Sri Subhas Basu Sri Amal Kanti Majumdar Sri Asok Nath Basu Sri Bibhuti Bhusan Bhattacharyya Sri Nirendra Kumar Guha Choudhury Sri Satya Ranjan Chakraborty
Registrar (Secretary non-member)	:	Sri Arun Kumar Gupta

FINANCE COMMITTEE

Vice-Chancellor	:	Prof. Sankar Kumar Sen
Hony. Secretary, National Council of Education, Bengal or his nominee	:	Sri Khagendra Mohan Chakraborty
Deans of Faculty Councils	:	Prof. Jayantanuja Bandyopadhyaya Prof. Pijush Som Prof. Amalendu Chowdhury
Govt. of West Bengal	:	Finance Secretary
Members of the Executive Council (who are not employees of the University)	:	Prof. Dr. Asima Chatterjee Dr. Dilip Kumar Chakraborti
Teacher nominated by the Executive Council	:	Sri Soumen Pal
Registrar	:	Sri Arun Kumar Gupta
Development Officer	:	Sri Amal Chandra Chanda
Accounts Officer	:	Sri Ajoy Kumar Bhattacharyya
Finance Officer (Secretary)	:	Sri Sreepada Sarkar

PLANNING & DEVELOPMENT COMMITTEE

Vice-Chancellor	:	Prof. Sankar Kumar Sen
Dean of Faculty Council in Arts	:	Prof. Jayantanuja Bandyopadhyaya
Dean of Faculty Council in Engg. & Technology	:	Prof. Pijush Som
Dean of Faculty Council in Science	:	Prof. Amalendu Choudhury
Members of the Executive Council (nominated by the Executive Council)	:	Prof. Krishna Prasanna Majumdar Prof. Anandadev Mukherjee Sri Satya Ranjan Chakraborty
Members of the Faculty Council (nominated by respective Faculty Council)	:	Sri Bimal Kanti Ghosh Dr. Ranjan Kumar Datta Prof. Nitindra Nath Som
Hony. Secretary, NCE, Bengal	:	Sri Khagendra Mohan Chakraborty
Representative of Calcutta Municipal Corporation	:	Sri Bamacharan Chakraborty
Person nominated by the Executive Council from amongst the representative of the Founder Donor	:	Dr. Subhrangshu Kumar Acharyya
Members co-opted by the Committee	:	The Chairman, Borough Committee–12 Prof. Dr. Ambica Ghosh Prof. Samir Kumar Rakshit
Registrar	:	Sri Arun Kumar Gupta
Finance Officer	:	Sri Sreepada Sarkar
University Engineer	:	Sri Biresh Chandra Sinha
Development Officer (Convenor)	:	Sri Amal Chandra Chanda

BUILDING COMMITTEE

Vice-Chancellor	:	Prof. S. K. Sen
Superintending Engineer, P.W.D.	:	Sri P. K. Ghosh
Representative, Planning & Dev. Comm.	:	Prof. S. K. Rakshit
Finance Officer	:	Sri S. P. Sirkar
University Engineer	:	Sri B. Sinha
Chief Govt. Architect, P.W.D.	:	Sri A. K. Majumdar
Registrar (Secretary)	:	Sri A. K. Gupta

FACULTY COUNCIL

ARTS

Vice-Chancellor	:	Prof. Sankar Kumar Sen
Head of the Deptt. of Bengali	:	Dr. Pabitra Bhusan Sarkar
Head of the Deptt. of Comparative Literature	:	Dr. Nabanita Deb Sen
Head of the Deptt. of Economics	:	Dr. Debjani Sarkar
Head of the Deptt. of English	:	Dr. Jasodhara Bagchi
Head of the Deptt. of History	:	Dr. Chittabrata Palit
Head of the Deptt. of International Relations	:	Dr. Baladas Ghosal
Head of the Deptt. of Library & Information Sc.	:	Sri Bijoyapada Goswami
Head of the Deptt. of Philosophy	:	Prof. Tushar Kanti Sarkar
Head of the Deptt. of Sanskrit	:	Dr. Nandita Bandyopadhyaya
Elected teachers from all departments of whom one shall be Professor :		
Deptt. of Bengali	:	Sri Chittapriya Ghosh Dr. Pabitra Bhusan Sarkar
Deptt. of Comparative Literature	:	Sri Swapan Kumar Majumdar Sri Subir Roy Chowdhuri
Deptt. of Economics	:	Sri Sourindra Nath Bhattacharyya Dr. Jaba Guha
Deptt. of English	:	Prof. (Mrs.) Kitty Scoular Datta Sri Mihir Ranjan Bhattacharyya
Deptt. of History	:	Prof. Amitava Mukherjee Sri Bimal Kanti Ghosh Sri Pranjal Kumar Bhattacharyya
Deptt. of International Relations	:	Prof. Jayantanuja Bandyopadhyaya Dr. Debi Chatterjee Sri Jyoti Bhusan Das Gupta (upto 14.7.87) Dr. Baladas Ghosal (from 15.7.87)
Deptt. of Library & Information Science	:	Sri Bijoyapada Mukherjee Sri Mangala Prasad Sinha (upto 31.6.87)
Deptt. of Philosophy	:	Prof. Pranab Kumar Sen Sri Arun Kumar Mookherjee Sri Hiranmay Banerjee
Deptt. of Sanskrit	:	Prof. (Mrs.) Chinmoyee Chatterjee Sri Nirmal Kanti Bose Dr. Nandita Bandyopadhyaya
Principal of affiliated College	:	Dr. P. Duari, Principal, Jadavpur Vidyapith College of Education
Teacher from affiliated College	:	Sri Amar Nath Ghosh Jadavpur Vidyapith College of Education
Nominees of Vice-Chancellor	:	Prof. Buddhadeb Bhattacharyya Prof. B. Chatterjee

ENGINEERING & TECHNOLOGY

Vice-Chancellor	:	Prof. Sankar Kumar Sen
Heads of the Deptt. :		
Architecture	:	Prof. Monideep Chatterjee
Civil Engineering	:	Prof. Pijush Som
Chemical Engineering	:	Prof. Asit Kumar Mitra
Electronics & Telecom. Engineering	:	Prof. Manish Kumar Mukherjee
Electrical Engineering	:	Prof. Sisir Kumar Nag (upto 30.6.87) Prof. Ajit Kumar Roy (from 2.7.87)
Food Technology & Bio-Chemical Engg.	:	Prof. Birendranath Srimani (upto 28.1.88) Prof. Dinesh Roy Chaudhury (from 29.1.88)
Metallurgical Engineering	:	Prof. Prodyot Kumar Mitra (upto 30.8.87) Prof. Bimal Choudhury (from 31.8.87)
Mechanical Engineering	:	Prof. Krishna Nath Chakraborty
Pharmacy	:	Prof. Arun Uday De
Production Engineering	:	Prof. Amitava Bhattacharyya
Three teachers of whom one shall be Professor of each Deptt. (Elected by teachers of all Departments) :		
Deptt. of Architecture	:	Prof. Krishnapada Bhattacharyya Sri Kshitindra Nath Pathak Sri Samir Kumar Rakshit
Deptt. of Civil Engineering	:	Prof. Jyotirmoy Sarkar Sri Bishnupada Chattopadhyay Sri Nitindra Nath Som
Deptt. of Chemical Engineering	:	Prof. Dibyendu Narayan Ghosh Sri Subhas Basu Sri Gopal Krishna Biswas
Deptt. of Electronics & Tele-com. Engg.	:	Prof. Manujendra Narayan Roy Dr. Pranab Kumar Banerjee Sri Aloke Kumar Das
Deptt. of Electrical Engineering	:	Prof. Prasanta Kumar Mookherjee Sri Samiran Chaudhuri Sri Kalyan Kumar Dutta
Deptt. of Food Tech. & Bio-Chem. Engg.	:	Prof. Saroj Kanti Majumder Sri Nanda Dulal Banerjee Sri Hiranmoy Gangopadhyay
Deptt. of Mechanical Engineering	:	Prof. Ajit Kumar Pal Sri Sukrit Ranjan Bhattacharyya Sri Arunesh Kundu
Deptt. of Metallurgical Engineering	:	Prof. Bireshwar Chakraborty Sri Gopes Chandra Das Sri Prodyot Kumar Mitra
Deptt. of Pharmacy	:	Prof. Bijan Kumar Gupta Sm. Malaya Chatterjee Sri Sanat Kumar Basu

Deptt. of Production Engineering	:	Prof. Satya Ranjan Dev Sri Jyotirmoy Saha Sri Swapan Kumar Sorkhel
Nominee of the Vice-Chancellor	:	Prof. Hem Chandra Guha Sri Khagendra Mohan Chakraborty

SCIENCE

Vice-Chancellor	:	Prof. Sankar Kumar Sen
Heads of the Deptts :		
Chemistry	:	Prof. R. V. Gopala Rao
Geological Sciences	:	Prof. Sachinath Mitra
Mathematics	:	Prof. Amitava Chakraborty
Physics	:	Prof. Parthasarathi Mookherjee

Three teachers of whom atleast one shall be Professor (Elected by teachers of all department) :

Deptt. of Chemistry	:	Prof. Bimanesh Sur Sri Ranjan Kumar Dutta Sri Satyapriya Moulik
Deptt. of Geological Sciences	:	Prof. Sukomal Kumar Chanda Sri Sibendu Choudhury Sri Anandadeb Mookherjee
Deptt. of Mathematics	:	Prof. Dilip Kumar Sinha (on lien) Sri Ranjit Kumar Mahalanabis Sri Bikash Ranjan Das
Deptt. of Physics	:	Prof. Nakul Chandra Das Sri Asit Bandyopadhyay Prof. Amalendu Choudhury
Principal of affiliated College	:	Sm. Bani Sen Sm. Jharna Sen Gupta (from 24. 7. 87) Principal—Sm. J. D. Birla Institute of Home Science
Teacher from affiliated College	:	Sm. Mahmooda Mohanty Sm. J. D. Birla Institute of Home Science
Nominees of the Vice-Chancellor	:	Prof. (Sm.) Ashima Chatterjee Dr. M. K. Das Gupta

ADMINISTRATION

Chancellor	:	Professor Nurul Hasan, Governor of West Bengal
Vice-Chancellor	:	Prof. Sankar Kumar Sen
Dean, Faculty of Arts	:	Prof. Jayantanuja Bandyopadhyaya
Dean, Faculty of Engineering & Technology	:	Prof. Pijush Som
Dean, Faculty of Science	:	Prof. Amalendu Choudhury
Registrar	:	Sri Arun Kumar Gupta
Finance Officer	:	Sri Sripada Sarkar
Controller of Examinations	:	Sri Radhashyam Samanta
Chief Librarian	:	Dr. Ajoy Kumar Chakraborty
Dean of Students	:	Dr. Bishnu Pada Saha
Deputy Registrar	:	Sri Bhaskar Banerjea Sri Kanchan Kumar Basu Thakur
Officer of Placement & Training	:	Sri Arabinda Chatterjee
Development Officer	:	Sri Amal Chandra Chanda
Librarian	:	Sm. Krishna Datta
University Engineer	:	Sri Bires Chandra Sinna
Medical Superintendent	:	Dr. (Major) Dharanidhar Pramanik
Accounts Officer	:	Sri Ajoy Kumar Bhattacharyya
Audit Officer	:	Sri Arun Prakash Som
Assistant Registrar	:	Sri Hemendra Nath Datta Sri Nirendra Mohan Das
Assistant Controller of Examinations	:	Sm. Bhaswati Mitra Vacant
Director of Physical Instruction	:	Sri Rathindra Kumar Sen
Associate Librarian	:	Sm. Manju Banerjee
Secretary, Faculty Council, Arts	:	Vacant
Secretary, Faculty Council, Engg. & Tech.	:	Dr. Bijan Kumar Pal (from 22. 7. 87)
Secretary, Faculty Council, Science	:	Dr. Monoranjan Khan (from 1. 7. 87)

Faculty of Arts

Heads of the Departments as on 31–3–1988

Bengali	:	Prof. Pabitra Bhusan Sarkar
Comparative Literature	:	Dr. (Mrs.) Nabaneeta Deb Sen
Economics	:	Dr. Dilip Haldar

English	:	Dr. (Mrs.) Jasodhara Bagchi (upto 29.2.88) Miss Jyotsna Bhattacharyya (from. 1.3.88)
History	:	Dr. Chitrabrata Palit
International Relations	:	Dr. Arun Kumar Banerjee
Library & Information Science	:	Sri Mangala Prasad Sinha (upto 1.5.87) Sri Bijoyapada Goswami (from 2.5.87)
Philosophy	:	Prof. Tushar Kanti Sarkar
Sanskrit	:	Dr. (Mrs.) Nandita Banerjee

Faculty of Engineering & Technology

Architecture	:	Prof. Monideep Chatterjee
Chemical Engineering	:	Prof. Asit Kumar Mitra
Civil Engineering	:	Prof. Pijush Som
Electrical Engineering	:	Prof. Sisir Kumar Nag (upto 30.6.87) Prof. Ajit Kumar Roy (from 2.7.87)
Electronics & Tele-communication Engg.	:	Prof. Manish Kumar Mukherjee
Food Technology & Bio-Chemical Engg.	:	Prof. Birendranath Srimani (upto 28.1.88) Prof. Dinesh Roy Choudhury (from 29.1.88)
Mechanical Engineering	:	Prof. Krishnanath Chakraborty
Metallurgical Engineering	:	Prof. Prodyot Rumar Mitra (upto 30.8.87) Prof. Bimal Chaudhury (from 31.8.87)
Pharmacy	:	Prof. Arun Uday De
Production Engineering	:	Prof. Amitava Bhattacharyya

Faculty of Science

Chemistry	: :	Prof. R. V. Gopalo Rao (upto 1.12.87) Prof. Nikhil Ranjan Ghosh (from 2.12.87)
Geological Sciences	:	Prof. Sachinath Mitra
Mathematics	:	Prof. Keshab Chandra Bagchi (upto 4.5.87) Prof. Amitava Chakraborti (from 5.5.87)
Physics	:	Prof. Parthasarathi Mukherjee

CONDOLENCES

Members observed one minute's silence for the sad demise of the following dignitaries and teachers of the University.

Prof. M. N. Bhowmik, Dept. of Mechanical Engg.
Prof. S. K. Nag, Dept. of Electrical Engg.
Sudeb Chandra Datta, Ex-member of the University.
N. G. Ramachandran, Chief Minister, Tamil Nadu.
Krishna Pada Ghosh, Ex-Minister, Govt. of West Bengal.
Prabhat Sarbadhikari, Retired teacher, Dept. of Economics.
Suddhasil Bose, Dept. of Comparative Literature.

COURSES OF STUDY

FACULTY OF ARTS

1. **Undergraduate Honours Courses :**

   Honours Courses of three years' duration leading to the Bachelor of Arts Degrees in Bengali, Comparative Literature, Economics, English, History, Philosophy, Political Science and Sanskrit. *The University has no Pass Course.*

2. Degree Course in Bachelor of Library & Information Science.

   (a) One-year duration (Day) Course

   (b) One and a half-year duration (Evening) Course

3. **Post-graduate Courses (Day) :**

   Two-year Courses leading to the Master of Arts in Bengali, Comparative Literature, Economics, English, History, International Relations, Library & Information Science, Philosophy and Sanskrit.

4. **Post-graduate Courses (Evening) :**

   Three-year Courses in Bengali, Economics, English, History, Philosophy and Sanskrit. The evening courses are open to School Teachers and those in employment.

5. **Master of Philosophy (M.Phil.) Courses :**

   Two-year duration in Comparative Literature, English, International Relations, Philosophy and Sanskrit.

6. Doctorate programme leading to Ph.D. (Arts) and D.Litt. degrees.

7. **Language Courses :**

   (a) Certificate Course in German, French and Russian.

   (b) Diploma Course in German, French and Russian.

   (c) Advanced Diploma Courses in German and Russian.

   These courses are of one-year duration and are open to students of this University.

   (d) Certificate Course in Bengali for non-Bengali students.

FACULTY OF ENGINEERING & TECHNOLOGY

1. **Undergraduate Courses :**

   (a) Architecture, Chemical Engineering, Civil Engineering, Computer Science & Engineering, Electrical Engineering, Electronics & Telecommunication Engineering, Mechanical Engineering, and Production Engineering leading to the degree of Bachelor of Engineering in the respective subjects. Each of these courses are of 4 years' duration excepting Architecture and Production Engineering—duration of which is $4\frac{1}{2}$ years.

   (b) Pharmacy of 4 years' duration leading to the degree of Bachelor of Pharmacy (B. Pharm).

   (c) Food Technology & Bio-Chemical Engineering and Instrumentation & Electronics Engineering Courses having 3 years' duration each leading to the degree of Bachelor of Technology (B.Tech.).

   (d) Part-time (Evening) Courses in Civil Engineering, Electrical Engineering and Mechanical Engineering of 5 years' duration. These courses are meant for diploma holders in Engineering who are in service.

2. **Post-graduate Courses :**

   Architecture, Chemical Engineering, Civil Engineering, Electrical Engineering, Electronics & Tele-communication Engineering, Mechanical Engineering, Metallurgical Engineering, Production Engineering, Pharmacy and Food Technology & Bio-Chemical Engineering leading to the Master in Engineering in respective subjects and Master of Technology in Food Technology & Bio-Chemical Engineering. Minimum requirement of attendance of these Courses is 3 Semesters ($1\frac{1}{2}$ years).

3. Doctoral Programme leading to Ph.D. (Engineering) and Doctor in Engineering (D. Engg.) degrees.

FACULTY OF SCIENCE

1. **Undergraduate Honours Courses :**

   Honours Courses of three years' duration leading to the Bachelor of Science in Chemistry, Geological Sciences, Mathematics and Physics.

   The University has no Pass Courses for the B.Sc. degrees.

2. **Postgraduate Courses :**

   Two-year Courses leading to the degree of Master of Science in Chemistry, Mathematics and Physics and three-year Course leading to Master of Science in Applied Geology.

3. **Postgraduate Evening Courses :**

   Three years' duration leading to the Master of Science degrees in Physics, Chemistry and Mathematics.

4. Doctoral Programme leading to Ph.D. (Science) and D.Sc. degrees.

RESEARCH PROJECT / PROGRAMME UNDERTAKEN BY TEACHERS

A. FACULTY OF ARTS

I. Comparative Literature :

Sri Swapan Majumdar compiled and annotated a definitive bibliography of the Bengali works of Rabindranath under the 'Tagore Bibliography Scheme' of National Library and a part of it has already been published as *Rabindra Grantha Suchi*.

Eight projects under Four Areas have been undertaken by the following teachers of the Department :

Indian Literature	:	Sri Swapan Majumdar and Sri Debiprosad Bhattacharyya
East-West Literary Relations	:	Sri Subir Roy Choudhury and Dr. Pranabendu Dasgupta
Third World Literature	:	Sri Manabendra Bandyopadhyay and Dr. Subha Dasgupta
Translation	:	Dr. Amiya Dev and Dr. Nabaneeta Dev Sen

II. Economics :

Dr. (Mrs.) Anita Banerjee, Professor of Economics, has undertaken a Research programme on 'Cost of Production of Graduates (Jadavpur University)' under the sponsorship of Institute of Applied Manpower Research.

III. Department of English :

Sri Ramaprosad De, Reader of the Department has already undertaken a programme on place—names and compilation of a Dictionary on place-names under the financial assistance of U.G.C.

Dr. Malini Bhattacharya, Reader of the Department has also taken a research programme on 'the Evolution of forms of performance in the Indian People's Theatre Movement' under the sponsorship of ICSSR as Senior Research Fellow.

IV. History :

Dr. Amitabha Mukherjea, Professor of History, has taken up the research programmes on 'History of the National Council of Education, Bengal, 1906–56' on being sponsored by the N.C.E., Bengal and also undertook a project on 'Militant Nationalism in India, 1876–1947' with the financial assistance of Institute of Historical Studies, Calcutta.

Dr. Pranjal Bhattacharyya, Professor of History, has undertaken a project on 'Freedom Movement in Tamluk (Midnapur), 1901–1947' with the assistances of Tamralipta Swadhinata Sangram Itihas Committee, Midnapur and Institute of Historical Studies, Calcutta.

Dr. Chittabrata Palit, Professor of History and Head of the Department, has also undertaken a project on 'History of the Bengal National Chamber of Commerce, 1887–1967' with the, sponsorship of Bengal National Chamber of Commerce, Calcutta.

Dr. (Mrs.) Anuradha Chanda, Reader of the Department, has taken up a programme on, 'Society and Politics of Surme Valley, 1885–1947' under the sponsorship of ICSSR, New Delhi.

Sri Kunal Chattopadhyay, Lecturer, has taken up two research projects on 'Karl Marx's Theory of Revolution and the Peasant question' and 'Marxist Theory and the class character of the Post-Revolution States'. He has also undertaken another project on "Documentation of Articles on History published in Bengali Journals in the 20th Century" having been sponsored by Paschim Banga Itihas Samsad.

V. Sanskrit :

Dr. Manabendu Banerjee, Lecturer, has undertaken a research project on 'A Study of Sanskrit Historical Kavyas in the light of Contemporary Inscriptions, Architecture, etc.' on being sponsored by the U.G.C.

Dr. Bhabani Prasad Bhattacharyya, Professor of Sanskrit, has taken up a minor project on 'a study of some phonetic phenomena in the Rgveda Pratisakhya' having been sponsored by U.G.C.

B. FACULTY OF ENGG. & TECHNOLOGY

1. Chemical Engineering :

	Title	Sponsoring Authority	Co-ordination/Investigation
1.	Development of Improved Biogms Digestor	School of Energy Studies, J.U.	Prof. D. N. Ghosh
2.	Development of Theories of mass transfer at the interface	UGC	Prof. S. C. Roy
3.	Development of Interfacial agent for Natural fibre reinforced composites	CSIR	Prof. R. N. Bhattacharya & Prof. S. K. Sanyal
4.	Development and implementation of Wood Stoves	School of Energy Studies, J.U.	Prof. G. K. Biswas
5.	Kinetics of slury reaction : Barium Salphide—Barium Sulphate System	UGC	Prof. A. K. Mitra
6.	Foam separation of placental extract in cortinnons column	UGC	Prof. S. K. Ghosal & Dr. P. Bhattacharya
7.	Separation of Selenium and Tellurium in a Mixer-settler with chelating agent	CSIR	Prof. S. K. Sanyal
8.	Separation of DL–Amino acids of enzyme immobilized liquid membranes	UGC	Prof. S. K. Sanyal

II. Civil Engineering :

1.	Weight optimisation of Mobile Service Tower for launching Rockets	ISRO	Prof. P. Som
2.	Analysis of Layered Shells for Rockets	ISRO	Prof. P. Som
3.	Hydrodynamics and Response off-Shore Structures	CSIR	Prof. P. Som
4.	Development of Software for Doppler Shift method in Satellite Geodesy	ISRO	Prof. P. Som
5.	Dynamic Response of Balanced Cantilever Solid Slab Bridge Deck	CSIR	Prof. B. Sen Gupta
6.	Soil-structure Interaction Analysis for design of underground RCC Service Tunnel	CSIR	Prof. B. Sen Gupta
7.	Iso-grid structural Component	ISRO	Prof. A. K. Mukherjee
8.	Efficacy of Compacted Cinder as load-bearing fill	CSIR	Prof. S. C. Das

	Title	Sponsoring Authority	Co-ordination/Investigation
9.	Piles in Layered soil with loading condition Relevant of off-shore structures	CSIR	Dr. R. D. Purkayastha
10.	Validity of BOD determination of High Temperature as against Standard conditions as 20° C for 5 days	Central Board for Prevention & control of Water Pollution	Prof. S. Niyogi
11.	Instrumentation of the Pollution Monitoring of Hooghly Estuary	Deptt. of Environment, Govt. of India	Prof. P. Som
III.	**Electrical Engineering :**		
1.	Novel Method of Measurement of Voltage and Current in Extra H. T. System	Electronics Commission	Prof. J. K. Chaudhury/ Prof. S. K. Basu
2.	H. V. Substation monitoring control and protection by digital computer	DSA, UGC	Prof. A. K. Roy/ Prof. S. K. Basu
3.	Development of Automatic Capacitance Bridge	National Physical Laboratory	Prof. J. K. Choudhury Prof. S. N. Bhattacharyya Dr. A. Rakshit
4.	Local area Computer Network for distributed Computing [JULAN]	ISRO	Prof. T. K. Ghosal Dr. K. Dutta
5.	ARDB	DRDO	Prof. A. K. Roy
6.	JUNFS	DRDO	Prof. A. K. Roy
7.	Jupiter one	DRDL	Prof. A. K. Roy
8.	Jupiter two	DRDL	Prof. A. K. Roy
9.	SCIM Transit	Electronics Commission	Dr. K. Ray
10.	Upgradation of 16 kj 1.4 Impulse Generator to 96 kj 2.1 mv rating	DSA, UGC	Prof. A. K. Roy Prof. P. K. Mukherjee Dr. C. K. Roy
11.	Development of Commutation Meter for D. C. Machines	Sc. & Tech. Committee State Planning Board	Prof. Sujay Basu
12.	Performance of Synchronous Machine under loss of excitation	CBIP & WBSEB	Prof. Sujay Basu Sri A. N. Sanyal Sri P. K. Chatterjee
IV.	**Food Technology & Bio-Chemical Engg. :**		
1.	Microprocessor Controlled Continuous Fermentation	UGC	Prof. B. N. Srimani
2.	Production of alcohol by direct fermentation	UGC	Prof. S. K. Majumder
3.	Isolation & Identification of a new anti-fungal anti-biotic from Sleptomyces Kanamycetens	UGC	Prof. S. K. Majumder
4.	Studies on the production of endatoxion by Bacillus thurimgensis H-14	CSIR	Prof. S. K. Majumder
5.	Production of Lactic acid from Starch	UGC	Prof. S. K. Majumder
6.	Studies of the fermentative production of the enzyme cellulose	UGC	Prof. S. K. Mukherjee

	Title	Sponsoring Authority	Co-ordination/Investigation
7.	Interaction of antisperm antibodies with Secretory function of human troppo blasts in culture	ICMR	Prof. S. K. Mukherjee
8.	Distribution of Oxidised lipids in raw and processed food and their effect on human serum cholesterol level	ICMR	Prof. S. K. Mukherjee
9.	Bipolymar Interactions at Interfaces	CSIR	Prof. D. K. Chattoraj
10.	Modified and controlled atmosphere storage of agricultural produce	ICAR	Prof. D. R. Chaudhuri
11.	Bioconversion of Industrial & Domestic Waste	Deptt. of Environment G.I.	Dr. P. Chakraborti
12.	Studies for the large scale production of Morel Mushroom Mydelium	CSIR	Prof. B. N. Srimani
13.	Studies on large scale production of Nitrogen-fixing bacteria, R legunminasarum	CSIR	Prof. B. N. Srimani
14.	Combination Chemotherapy in leukemic mice	CSIR	Dr. (Mrs.) Pratima Sur (Pool Officer)
15.	Molecular Biology of endotoxing production of Bacillens Thrumgiensis	UGC	Prof. S. K. Majumder
16.	Microbiological reduction of quininone to quinidine	DST	Prof. S. K. Majumder
V.	**Mechanical Engineering :**		
1.	Basic Research in Monsoon Meteorology with particular reference to Monsoon Dynamics, Surge Ocean waves due to cyclone and Monsoon Rain and Weather on Crop Growth.	India Meteorological Deptt. Govt. of India	Prof. B. N. Chanda
2.	Mechanics of Hard Tissue Machining Development of Surgical Cutting Tools and appliances.	Deptt. of Science & Technology, Govt. of India	Prof. S. Pal
3.	The Effect of PEMF on Fracture Heading and Bone Growth.	ICMR	–do–
4.	Electronic Rehabilitation Aids for Physically Handicapped	Deptt. of Electronics Govt. of India	–do–
5.	Water Resources Management	Ministry of Human Resources Development, Govt. of India	Prof. B. Bose
6.	Vibration Monitoring of Machine Tools for Fault Detection	Departmental Resc.	Prof. M. Bhattacharyya
7.	Design & Verification of a Vibration Isolation System	–do–	–do–
8.	Design & Fabrication of Homoeopathic Potentizing Machine	–do–	–do–
9.	Design & Fabrication of Constant Pressure Friction Welding Machine	–do–	–do–

	Title	Sponsoring Authority	Co-ordination/Investigation
VI.	**Metallurgical Engineering :**		
1.	Studies on the Optimisation of Foundry Production	UGC	Prof. B. Chakraborty
VII.	**Pharmacy :**		
1.	Pharmacological studies of Mcotoxins in Animals	CSIR	Prof. M. Gupta
2.	Biopharmacological Studies of Pesticides	Ciba Geigi	–do–
3.	Comparative Assessment of Mycotoxin MT 81 and its structural analogues in Animals	ICMR	–do–
4.	Design of Continuous starch Hydrolyser	UGC	Prof. A. Nanda
5.	Pharmacological studies on Ralanchoe Pinnata	UGC	Prof. A. Nanda & Dr. A. Nagchoudhury
6.	Molecular Connectivity log P in relation to Biological Activity	CSIR	Dr. (Mrs.) C. Sen Gupta
7.	Partition Coefficient Interaction with lipid and Cardiovascular Drug in Biological Activity	UGC	–do–
8.	Studies on Jelly Fish Toxin	ICMR	Dr. A. Nagchoudhury
9.	Studies on Viper Venon	ICMR	–do–
10.	Microencapsalation of Drug to study the Control Release Kinetics	UGC	Dr. T. K. Pal
11.	Microencapsalation of Saletamel Salfate to study in Vitro and Inrive Release Kinetics	ICMR	Dr. T. K. Pal & Prof. S. P Pal
12.	A Microbial Genetic unit or National Transfer of Plasmids in Bacteria and Monitoring shifting pattern in Microbial Drug Resistance	ICMR	Prof. (Mrs.) Sujata Ghosh Dastidar
13.	Studies on the Antimicrobial Properties of Methdiladine with a view to establish an Antimicrobial Agent	UGC	–do–
VIII.	**Production Engineering :**		
1.	Microprocessor Application in Robotics	MHRD	Prof. A. Bhattacharyya
2.	Strengthening the Area of Product Development	MHRD	–do–
3.	Development of Area of Maintenance of Tribiology	MHRD	Prof. S. K. Basu
4.	Development of Robot Vision & Cripper Sensors	DST	Prof. S. R. Deb

C. FACULTY OF SCIENCE

I. Chemistry

	Title	Sponsoring Authority	Co-ordinator/Investigator
1.	Synthesis of Heterocyclic compounds of potential biological activity	CSIR	Prof. A. Chatterjee
2.	Synthesis of policyclic compounds	Jadavpur University	Prof. A. Chatterjee
3.	Fish-skin glycoprotein	Govt. of India Exchange programme	Prof. A. Das
4.	Plant Polysaccharides	CSIR	Prof. A. Das
5.	Photo-oxidation of metal complexes of a tricyclic B-keto ester	UGC	Prof. N. R. Ghosh and Dr. M. B. Saha
6.	Studies on Organic reactions	Jadavpur University	Prof. N. R. Ghosh and Prof. A. Das
7.	Synthesis and reactions of some naturally occurring bioactive nitrogen and oxygen heterocycles with special reference to alkaloids	UGC	Dr. S. N. Ghosh
8.	Thermodynamic studies on solute-solvent interactions in Aquo-Ionic co-solvent system	UGC	Prof. K. K. Kundu
9.	Thermodynamic studies on solute-solvent interaction in aquo-organic solvent system	DSA	Prof. K. K. Kundu
10.	Thermodynamic and Electrode Kinetic studies of some Redox couples related to Non-aqueous Batteries and photochemical cells	CSIR	Prof. K. K. Kundu
11.	Search for cheaper Electro-catalysts related to some potential fuel cells	CSIR	Prof. K. K. Kundu
12.	Ion-solvent Interaction in Aquo-Organic and Mixed solvent system	Jadavpur University	Prof. K. K. Kundu
13.	Studies on Thermodynamic and Kinetic solvent Effect in some aqueous-Ionic and Non-ionic co-solvent system	–do–	Prof. K. K. Kundu
14.	Studies on Choesterol and cholesterol derivatives contained in microemulsions	DST	Dr. S. P. Moulik and Dr. P. K. Bhattacharya
15.	Physico Chemical Properties of some micro-emulsion systems	CSIR	Dr. S. P. Moulik and Dr. P. K. Bhattacharya
16.	Physico Chemical properties of urea in various environment	UGC	Dr. S. P. Moulik
17.	Physicochemical properties of some Mixed Micellar system	DSA	Dr. S. P. Moulik
18.	Triplets and redicals of aromatic Ketones	CSIR	Dr. S. C. Bera
19.	Artificial models for conversion and storage of solar energy	Deptt. of Non-conventional Energy Sources	Prof. K. K. Rohatgi-Mukherjee Dr. A. B. Chatterjee Dr. S. C. Bera

	Title	Sponsoring Authority	Co-ordinator/Investigator
20.	Laser-induced and surface-modified molecular rate processes in small molecules	Jadavpur University	Dr. D. K. Bhattacharya
21.	Development of Photoelectro-chemical cell with photoactive Electrodes	CSIR	Dr. B. Bhowmik
22.	Studies on Storage cells consisting of Dyes	–do–	Dr. B. Bhowmik
23.	Electrical, spectral and photochemical studies in Bilayer Lipid Memberanes	–do–	Dr. B. B. Bhowmik
24.	Photogalvanic Storage system (1) Storage as chemical energy (ii) Storage as Electrical Energy	DNES	Prof. K. K. Rohatgi-Mukherjee
25.	Kinetics of Mechanism of Rodox Reactions involving complexes of Ag(ii) and AG(iii)	UGC	Dr. R. N. Banerjee
26.	Mechanism of Redox Reactions of Mn(II)	UGC	Dr. R. N. Banerjee and Prof. A. K. Chakraborty
27.	Molecular, Statistical and Quantum Mechanical study of liquids	UGC	Prof. R. V. G. Rao
28.	Fundamental Chemical Studies on the Extraction of rare....etc.	–do–	Prof. S. P. Bag
29.	Synthetic, Structure..Catalytic properties etc.	–do–	Prof. R. G. Bhattacharya
30.	Electron Transfer Reactions involving organic Molecules of Bio-Chemical significance	CSIR	Dr. K. K. Sengupta
31.	Synthesis and Screening of arylalkanoil acids and their .... etc.	CSIR	Dr. S. C. Lahiri
32.	Fundamental Studies on Hydro-metallurgical Extraction	CSIR	Dr. S. P. Bag
33.	A comprehensive stastical Mechanical Study of the Equiliria etc.	DST	Prof. R.F.G.G. Rao
34.	Project on Boron Compounds of Potential Medicinal utility	–do–	Prof. M. K. Das
35.	Metalm Sulphur aggregates, cages and clusters. Synthetic structural spectroscopic and photoelectrochemical studies	–do–	Prof. R. G. Bhattacharya
36.	Trace & Ultrabrace Analysis	UGC (DSA)	Prof. B. K. Pal
II.	**Geological Sciences :**		
1.	Studies on point defactor in Carbonate System	CSIR	Prof. S. Mitra
2.	Studies on Electron Delocalisation in Multivalent Ions in Minerals	DSA/CAS	–do–
3.	Mineralogical and Geochemical Studies on Beach Sands of Cox Bazar, Bangladesh and its relationship with other Coastal Deposits around Bay of Bengal, India	UGC	–do–
4.	Mercury-Selenium Interaction in Bio-Geochemical Environment around Calcutta	Self	Sri R. K. Majumdar

	Title	Sponsoring Authority	Co-ordinator/Investigator
5.	Neotectonics of Himalaya Belt, Tibet, Burmese Ore, Andaman Islands	CSIR	Sri R. K. Majumdar
6.	Simulation of Potential Fields by Fluid Flow Mapper	UGC	–do–
7.	Marine Geophysical Investigation in Western Coast, India	Self	–do–
III.	**Mathematics :**		
1.	Energy Transport in LASER Irritated Targets	Deptt. of Atomic Energy, Govt. of India	Prof. B. N. Chakrabarty
2.	Mathematics Modelling of some aspects of Atmospheric Phenomenons	DST	Prof. D. K. Sinha Prof. S. R. Khamrui Prof. K. S. Chaudhuri Dr. A. K. Guha Dr. R. P. Bandopadhyay
3.	Economic Modelling of Biological Resources Exploration	Third World Academy of Sciences, Viena	Prof. K. S. Chaudhuri
IV.	**Physics :**		
1.	Comprehensive Statistical and Mechanical Study of Equilibrium and non-equilibrium properties of Liquids and Solutions	DST	Dr. R. N. Joardar
2.	The use of Solitomic models for the Electron and Energy Transfer in bio-energetic Process	CSIR	Dr. A. Roychowdhury
3.	Analysis of Classical, Quantum Mechanical and Chaotic Properties of some Non-linear Systems sustaining Solitors	DST	–do–
4.	Variation in Properties of S. Kenamyceticens by Induced Mutations	Jadavpur University	Dr. Nripesh Ghosh
5.	Physico-chemical Characterization of Zhritch's Ascitos Carcinoma (FAC) Cell	Jadavpur University	–do–
6.	Study of Hadronic Jet with Laser Interferometry Microscopy	JU-Lyon-Santendu collaboration	Dr. Dipak Ghosh
7.	Study of Intermediate Energy Heavy Ion Reaction using VECC facility and Plastic Detector	JU-CU collaborator	–do–
8.	Muon Capture Channels for Muon Catalysed Fusion	DST	Dr. Lali Chatterjee
9.	Interactions and properties of Clementory Particles	UGC	Prof. S. N. Banerjee
10.	Viscosity and Heat Flow in General Relativity and Relativistic Cosmology	CSIR	Dr. Asit Banerjee
11.	Electrical, Spectral and Photo-chemical studies of Bilayer Lipid Membranes	DST	Dr. P. Nandy
12.	Study of Photovoltage Generation in Pigment/Dye probed Lipid Aggregate structures	DAE	–do–
13.	Determination of Refractive Indices of Nenotic Liquid Crystals	UGC	Dr. S. K. Roy

PUBLICATIONS, RESEARCH PAPERS / BOOKS

A. FACULTY OF ARTS

I. Department of Bengali

1. Dr. Pabitra Sarkar :

Paper submitted on 'An Evaluation of Bengali Dictionaries now available' at the National Seminar on an evaluative survey of Indian Lexicography, held at the Central Institute of Indian Languages, Mysore, in November 1987. Attended the National Seminar on Encyclopaedia at Calcutta as a discussant in November 1987.
Published the following books :
1. Bangla Banan Samskar : Samasya O Sambhabana—July 1987.
2. Japane Kayekdin—November 1987.
3. Haste Haste Banan (Spelling rules in Rhymes for children)—November 1987.

2. Dr. Udaya Kumar Chakraborty :

Read a paper on 'Rabindra Kabya Silpa' at Sheoraphuli Raj Bari, in May 1987.
Published 'Adhunik Bangla Sahitya Amiyabhusan, Proma, in April–June 1987.
Prasange : Matra Nirupan Padhati, Mahadiganta No. 33—Probodh Ch. Sen Samkha, 1987.

II. Department of Comparative Literature

1. Published Jadavpur Journal of Comparative Literature, Vols., 26 and 27, edited by Professor A. Dev.

2. Sm. Arundhati Bandyopadhyay—Banglar Loknatya Jatra O Sathi Rabindra Natak.
'Ekaler Bangla Natak', *Chaturanga*, April 1987.
'Badal Sircar's Plays : Close Encounters'. Bharati Journal of Comparative Literature 1987.
'Amader Nataker Mukh O Mukhosh', *Chaturanga*, February 1988.

3. Sri Narayan Mukherjee—Romantic Istahar.

4. Sri Debiprasad Bhattacharya—'On Vaisnavism : Contemporary Commemorative Volume of M. M. Gopinath Kaviraj—November 1987.

5. Prof. Manabendra Bandyopadhyay—Latin American Bidrohi Kabita, Calcutta, May 1987. Edited—Adhunik Bharatiya Golpo (Vol. 3), Calcutta 1987.

6. Sri Subir Roy Chaudhury—'Hasan Azizul Haqer Galper Jaiga Jani Manus', *Chaturanga*, December 1987.
'Swadhin Bangladeshe Moliere Charcha', Kolkata Du Hazar, December 1987.
'Dhani Theke Drisye', *Baromas*, April, '87.
'Kusangskar diye, Kusangskar Ladai—Gandhi-Rabindra Bitarka', Sarasandhan, March 1988.

7. Sri Sibaji Bandyopadhyay—Review of 'Jalraksas', *Baromas* 1987.
Ekaler Rupkatha : Samasamaik Bangla : *Nakhatra*, Calcutta 1987, Janapriya Sahitya.

III. Department of Economics

1. Professor Dilip Kr. Halder—Economic Studies, 1987 of the Department of Economics (edited).

2. Sri Biswajit Chatterjee—Technology Transfer in the Modern World—Southern Needs and Northern Response. *Arthasastra*, Vol. VI, No. I, 1987.
'Trade Technology and Development' in Economic Studies, Department of Economics, 1988
'Economic Development—Fading of an old Canvas', *Arthasastra*, Vol. VII, No. I with Sri A. K. Sinha—March, 1988.
'International Debt Crisis', Indian Economic Conference Volume, December 1987.

3. Dr. Sugata Marjit—Trade in Intermediates and the Colonial Pattern of Trade, *Economia*, May 1987.
'A simple Model of Technology Transfer', *Economic letters*, February 1988.
Economic Growth and the Current Account in Large Countries, *Keio Economic Studies*, Vol. XXIV, 1988.

IV. Department of English

1. Dr. (Mrs.) Jasodhara Bagchi :

Criticism and Culture in Victorian England : Arnold Carlyle and Pater in Essays and Studies VI of Jadavpur University, 1987.
Feminism and Nationalism in Tagore's *Ghare Baire*
Feminism and Literature, Institute of English, Trivandrum
Edited : Jadavpur University : Essays and Studies, Vol. VI, 1987.

2. Dr. (Mrs.) Sobha Chattopadhyay :

Evil, its Nature and Consequence in same novels of James and Greene.

3. Sm. Sati Chatterjee :

F.H. Bradley and T.S. Eliot: The Cognitive Process, J.U. Essays and Studies, Vol. VI, 1987.

4. Sri Arup Rudra :

French Criticism and the Indian Films, Chitravash, No. 324, 1987.

5. Dr. Supriya Choudhury :

Medieval Ovids : Myth and Allegory, Journal of the Department of English, Calcutta University 22, 1986–87.

6. Dr. (Mrs.) Malini Bhattacharya :

'Adonars : a Romantic Self-Critique' in J. U. Essays and Studies, VI, 1987.
Experiments in Socialist Practice : Some Impressions of China : Issues in Development, ed. Ashoke Mitra 1988.
Review Article on Imaginary Relations : Aethestics and Ideology in the Theory of Historical Materialism by Michael Sprinker—the Sunday Statesman Miscellany, Feb. 21, 1988.
Manik Bandyopadhyay : Selected Stories : edited and introduced.

7. Sri Mihir R. Bhattacharya :

Recent Indian Cinema and the Techniques of Realism (in Bengali), *Prama*, Vol. IX, No. 4, September 1987.

8. Dr. Visvanath Chatterjee :

King Liar : The limits of Art, Indian Journal of Shakespeare Studies, Vol. II.

V. Department of History

1. Professor Amitabha Mukherjee :

'Era of Militant Nationalism—the first phase upto 1918' in *Hundred Years of Freedom Struggle*, edited by Dr. N. R. Ray and others published by Biplabi Niketan, Calcutta, September 1987.
'Indian Nationalism and Swami Vivekananda' in the Quarterly Review of Historical Studies, Vol. XXVI, No. 3, published in February, 1988.
'Aitihasiker Dristitey Sri Ramkrishner Abirbhaver Tatparya' in Viswa-Chetanye Sri Ramkrishna (Bengali), published by the Udbodhan in 1987.
'Bartaman Yuge Swami Vivekanander Chintar Prasangikata' in the Udbodhan (Bengali), Magh 1394 B.S. (Feb. 1988).

2. Professor Bela Lahiry :

'Religious Affiliations of the Medieval Non-Muhammedan Rulers of North-Eastern States of India, as reflected in their coins' in D.C. Sircar Memorial Volume, Gauhati, 1987.

3. Professor Chittabrata Palit :

Edited the Revolt Studies-I (A collection of papers on various revolts and resistance movements of India), Calcutta, 1987.
'Pabna Bidroher Swarup' in A. Hossain and M. Mamun (eds.) *Bangladesher Sashastra Krishak Sangram* (in Bengali), Dacca, 1987.
'Bagal, J. C. and 'Bandyopadhyay, B' in Supplementary Dictionary of National Biography, Vol. I, Institute of Historical Studies, Calcutta 1987.
Rural Transition in India : A Synoptic Note' in the Journal of History, Jadavpur University, Vol. VII, February 1988.

4. Professor Amalendu De :

Author of :

'*Bangali Buddhijibi O Bichchinnatabad*', Calcutta 1987 (Reprinted by Paschim Banga Rajya Pustak Parshad).
Bharater Itihasa, Calcutta, 1987.
Edited Pulin Behari Das's '*Amar Jiban Kahini*', Calcutta 1987.
Became a Member, Editorial Board of the Volume entitled *Hundred Years of Freedom Struggle* 1847–1947, Calcutta 1987.

Papers published :

The Organisation of Secret Revolutionary Societies in Bengal, in Hundred Years of Freedom Struggle 1847–1947, Calcutta 1987.
British Birodhi Swadhinata Sangram O Muslim Samaj, in Chaturanga, November, 1987.
British Upanibeshik Sasaner Biruddhe Muslim Samajder Pratikria, in Smarak Patrika, published by West Bengal Government, 1987.
Sri Aurobindo on National Unity, in the proceedings of the seminar on National Unity : True and False, Calcutta, January, 1988.

5. Professor Pranjal Kumar Bhattacharya :

'Bharater Bairer Itihas O Silpa Biplab Sambandhe Kicchu Chinta—Bhabana' in Itihas Anusandhan II, September, 1987, being the Presidential Address for the section on 'Bharater Bairer Itihas' at the Third Annual Conference of Paschim Banga Itihas Samsad, held in September 1986.
'The Genesis and Early Activities of the Indian National Congress' in Hundred Years of Freedom Struggle 1847–1947, published by the Biplabi Niketan, Calcutta 1987.
'England as the Harbinger of Industrial Revolution' in Journal of History, Jadavpur University, 1986-87, Vol. VII, February, 1988.
'Introduction of English Education and the Indian Response'—Chapter contributed to N. R. Ray (ed.) Modern Bengal : A Socio-Economic Survey (in the Press).

6. Dr. (Mrs.) Papia Chakraborty :

'Emergence of the Bharat Sevasram Sangha : A Phase of the Hindu Response in Bengal to the Nationalist Ferment 1923–30' in the Journal of History, Jadavpur University, Vol. VII, 1986-87
'Modernizing Role of the Traditionalists in the 19th Century Bengal'—Chapter contributed to Dr. N. R. Ray (ed.) Modern Bengal—A Socio-Economic Survey (in the Press).

7. Dr. Debaprasad Choudhury :

'Pre-Congress Nationalism : The Growth of Political Consciousness upto 1885' in Hundred Years of Freedom Struggle 1847–1947, published by the Biplabi Niketan, Calcutta, 1987.

8. Dr. Sukla Das :

Author of :

Fabric Art Heritage of India (in Press).

Papers published :

'Janoraja and Dvitiya Rajatarangini'—Indological Studies' in D.C. Sircar Commemoration Volume, Abhinav Publications, New Delhi, 1987.
'A Textile Heritage of India—Studies in Orientology' in Essays in Memory of Prof. A. L. Basham, Y. K. Publishers, Agra, 1988.

9. Sri Kunal Chattopadhyay :

Monographs :

Leninism and Permanent Revolution, Baroda, 1987.
Tebhaga Andolaner Itihas, Progressive Publishers, Calcutta, 1987.
The Fourth International, Antar Rashtriya Prakashan, Baroda.

Text Books/Manual :

Prachin Greek Samaj O Sanskriti—Progressive Publishers, Calcutta (Co-authored with Sri Sujato Bhadra).
'Marx, Engels and the Peasent Question 2 : The struggle for a worker—Peasant Alliance—The Politics of Nene, Rheinische Zeibung' in Jadavpur University Journal of History, Vol. VII, 1986-87.
'Dwitiya Chin Biplab O Bampanthi Bidrohi Gosthi' (The Second Chinese Revolution and the Left Opposition) in G. Chattopadhyay (ed.), *Itihas Anusandhan*-2 proceedings of the 3rd Annual Conference of the Paschim Banga Itihas Samsad, Calcutta, 1987.
'Christian Rakovsky and the 1923 Ukrainian Opposition in the RCP' proceedings of the Indian History Congress, 47th Session, Srinagar, 1986, pub. New Delhi, 1987.
'Inga-Rush Trade Union Committee, British Sadharan Dharmaghat (1926) O Bampanthi Bidrohi Goshthi' (The Anglo-Russian Trade Union Committee. The British General Strike, (1926) and the Left Opposition) in G. Chattopadhyay (ed.) Itihas Anusandhan-3, Calcutta, 1988.

10. Dr. Amit Bhattacharya :

'The Great Peshwar Uprising (1930)' in Revolt Studies, Vol. 2, No. I.
'More about Swadeshi Enterprise' in Journal of History, Jadavpur University, Vol. 7, 1986-87.
'Saban Silpe Swadeshi Bangali' in Aitihasik, Vol. 4, No. 1, in 1987.

VI. Department of International Relations

1. Professor Jayantanuja Bandyopadhyaya :

Author of : 'The Poverty of Nations : A Global Perspective of Mass Poverty in the Third World,' —Allied Publishers, New Delhi, 1988.

2. Professor Arun Kr. Banerjee :

'India and West Asia : Changing Images Reflect Shifts in the Regional Balance of Power', The Round Table (London), January, 1988.

3. Professor Baladas Ghoshal :

'Recent Trends in South Asia' in V.D. Chopra and K. P. Misra (ed.) South Asia and Asia-Pacific Region : *Emerging Trends*, New Delhi, 1987.
'India and Southeast Asia : Changed Perceptions' in Bhabani Sengupta (ed.) SAARC-ASEAN Cooperation : Problems and Prospects, New Delhi 1988.
'Changing Political and Strategic Scene in Southeast Asia at the end of the Eighties' World Focus, New Delhi, April, 1987.

4. Dr. Suchita Ghosh :

A review article on 'Central Asia : The struggle for Central Asia' was published in International Studies, Vol. 25, No. 1, in 1988.

VII. Department of Philosophy

1. Professor Pranab Kumar Sen :

'The Context Principle and some Indian Controversies over Meaning' in Mind, January 1988 (jointly with B. K. Motilal).
Undertaken Studies in Philosophical and non-Standard Logic with Logic Group under the DSA/CAS Programme at the Department (Individual Contribution and Editing).
Prepared a book entitled 'A Modern Introduction to Vaisesika Ontology' (in collaboration with Smt. Srilekha Datta) under the DSA/CAS Programme at the Department.

2. Professor Tushar K. Sarkar :

'Sense-data and Physical Objects : A Systematization of Moore's View'—published in IPQ, 1988.
'Aesthetic Enjoyment, Information Theory and Social Milien : Paper published in All India Seminar on Aesthetics at North Bengal University in February, 1988.
'In search of the roots of Scepticism : All India Seminar on Scepticism' at Viswa-Bharati in March, 1988.
Undertook research projects in 'Formalization in Social Science', and 'Objectivity as a Methodological paradigm in Quantum Mechanics,' and 'Some Philosophical problems of Non-Standard Logic'.

3. Professor Hiranmoy Banerjee :

Published a paper on 'Strawson and Scepticism', Has undertaken research project on 'Philosophy of Language' and 'Philosophy of Culture', during the year.

4. Dr. Kalyan Sengupta

Published a paper on 'Bad News for Casual Explanation of Human Action' in JPCPR, Autumn 1987.
Edited Professor Kalikrishna Banerjee's book—'Language, Knowledge and Ontology', published by ICPR.

5. Dr. (Mrs.) Krishna Roy :

Jointly edited and published 'A Collection of Essays' by Late Professor K. K. Banerjee published by ICPR on 'Language, Knowledge and Ontology' in 1988.
Published a discussion paper entitled 'Scientific Knowledge and Human Happiness' in JICPR, Vol. V, No. I, 1988.
Has undertaken research projects on 'An Anthology on Social and Political Philosophy' and 'Science and Subjectivity : A Phenomenological Approach'.

6. Dr. Tapan Kumar Chakrabarti :

Published a paper on 'Does Hume Subscribe to the Uniformity View of Casuality ?' in a journal in April 1987.
Has undertaken research projects on 'Indian Theories of Casuality.'

7. Dr. Shefali Moitra :

Author of :
'Integrational Problems' in Composite Culture of India and National Integration ed. by R. Khan, Allied Publishers, 1987.
Made a review of 'Towards a critique of cultural Reason', by S. Rajan, QOP, published in JICPR, Vol. V, No. 2, 1988.
Published an article on 'Alternative Standdpoints at the Foundation and Culmination O Kalidas Bhattacharyya's Philosophy' in Kalidas Bhattacharyya's Memorial Volume in ICPR in 1988.
Has undertaken a Group Research Project on 'Philosophical and Non-standard Logic'.

8. Dr. (Mrs.) Chhanda Gupta :

Published an article on 'Value and Social Science'—Contributing to an Anthology on Social and Philosophical Philosophy' and jointly edited with Dr. (Mrs.) Krishna Roy under ICPR.
Has undertaken research project on 'Study on Realism and Relativism'.

9. Dr. (Mrs.) Amita Chatterjee :

Published an article on 'Power and Sakti : A Comparative Study' in the Journal of Indian Philosophy, Vol. 15, No. 3, in September, 1987.

10. Sri Tirthanath Bandyopadhyay :

Published a book on 'Man : An Essay in Philosophical Anthropology' in 1988.
Published an article on 'Universalizability and Contextuality' in the Journal of ICPR in 1987.
Preparing papers on 'Action and Event' and 'Action and Freedom'.

11. Smt. Indrani Sanyal :

Published a paper on How is '(∃x) (x is necessarily greater than 7)' in ICPR, Vol. IV, No. 2, in Spring 1987.
Has taken a project on 'Possible Worlds'.

VIII. Department of Sanskrit

1. Dr. (Mrs.) Nandita Banerjee :

Published article on 'Definition of Valid Knowledge' in two consecutive issues of Anviksa, a journal of the Department.
Published an article on 'The Concept of Contradiction in Indian Logic and Epistemology' in Journal of Indian Philosophy 15 (1988).

2. Dr.(Mrs.) Bijoya Gowami :

Published an article on 'Horace and Concepts of Indian Poetics' in Anviksa, a journal of the Department (Vol. X).

3. Professor Bhabani P. Bhattacharyya :

Published an article in Novonmesa, M. M. Gopinath Kaviraj Smriti Grantha.
Published another article on 'Treatment of Faults in pronunciation in Rgveda Pratisakhya in Anviksa, Vol. IX, a research journal of the Department.
Has undertaken a minor research project on ' A Study of some Phonetic Phenomena in Rgveda-Pratisakhya under U.G.C. Scheme.

4. Dr. Manabendu Banerjee :

Published articles on 'Sanskrit inscriptions as the source of political history of India under the rule of the Gupta Kings' in Anviksa, Vol.IX, 1987. and 'Kuntalesvaradentya of Kalidasa in Anviksa, Vol.X,1987. and Kuutalesvaradantya of Kaiidas in Anviksa Vol. X, 1987.
Published an article on 'Some interesting post-Colophon statements of the Sanskrit Manuscripts' preserved in the Asiatic Society Library under 'Indological Studies'— a volume in commemoration of Professor D. C. Sircar, New Delhi, August-September, 1987.
Published another article on 'The Mahabharata as a commentary of the Bhagavad Gita' (Philosophical Essays-Prof. A.L. Thakur Felicitation Volume, Calcutta, August, 1987.
Published a Seminar paper on 'Position Women as reflected in the Gupta and Contemporary Inscriptions'.
Acted as Member, Editorial board of Philosophical Essays—Professor A.L.Thakur Felicitation Volume, Calcutta, August, 1987 and one of Chief Editors of Ancient Indian History, Philosophy and Culture—Essays in memory of Professor Radhagovinda Basak, Calcutta, September 1987. Also a Member of the Organising Committee of the 'National Seminar on Encyclopaedia' held in Oct.-Nov., 1987, in Calcutta.

B. FACULTY OF ENGINEERING AND TECHNOLOGY

I. Department of Civil Engineering

1. P. Som, B. N. Ghosh and S. Chaudhury :

Utilisation of Remote Sensing Data for Development of Mathematical Model Correlating Deforestation, Erosion of Land and Change in other Landuse / Landcon—Indian Science Congress, Pune, January, 1988.

2. B. Sengupta, D. Ghosh, A. Dutta and D. Kundu :

Contribution of Compression Steel Towards Shear Flexure Failure of Reinforced Concrete Beams. Second International Colloquim on Concrete in Developing Countries, Bombay, January, 1988.

3. B. Sengupta and S. Sen :

Comparative Design of RCC Framed Building By Different International Code of Practical Leading to Structural Economy. Second International Colloquium on Concrete in Developing Countries, Bombay, January, 1988.

4. B. Sen Gupta and T. K. Bandopadhyay :

Effect of Deffered Initial Loading and Percentage of Steel on Time Dependent Losses and

Deformations of Prestressed Members. Journal of the American Concrete Institute : Structural Engineering Divisions. March–April, 1988.

5. N. Som :

Design and Performance of Shield Tunnelling in Calcutta Soil. Proc. Seminar on Underground Construction, Institution of Engineers, W. B. State Centre, December, 23. 1988.

6. N. Som :

Earth Pressure in R.C.C. Tunnel Lining in Shield Tunnelling for Calcutta Metro Construction. Proc. Indian Geot. Conference, 17–19 December 1988, Bangkok.

7. N. Som :

Experience with Shield Tunnelling for Calcutta Metro Construction. Proc. International Symp. on Underground Engineering, 14–18 April 1988, New Delhi.

8. R. D. Purkayastha and P. Bhattacharya :

Ultimate Lateral Load of Deep Foundation in Layered Soil. Indian Geotechnical Conference, Vol. 1, Bangalore, 1987.

9. P. Bhattacharya :

Effect of Embedment on the Dynamic Response of Block Foundation. Proc. Indian Geot. Conference, Vol. 1, Bangalore 1987.

II. Department of Chemical Engineering

1. Indrani Ghosh, S. K. Sanyal and R. N. Mukherjee :

Separation of Organic Liquid Mixtures by Pervaporation—Effect of Some Physics—Chemical Properties, J. Inst. of Engrs. (India), Vol. 68, pt. Ch-1, October, 1987.

2. S. K. Pal, D. Mukherjee, S. K. Sanyal and R. N. Mukherjee :

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3. Indrani Ghosh, S. K. Sanyal and R. N. Mukherjee :

Pervaporation of Methanol and Ethylene Glycol Through Cellophane Membrane—Some Mechanistic Aspects, I. and E.C. Research and Process Dev.

4. A. K. Mitra, ed., Separation by Membrane System, Ind. Chem. Engr., Vol. 29(2), 1987.

5. A. K. Mitra, ed., Energy Consumption and Conservation, Ind. Chem. Engr., Vol. 29(3) 1987.

6. A. K. Mitra, ed., Assessment of Environmental Pollution, Ind. Chem. Engr., Vol. 29(4), 1987.

7. A. K. Mitra, ed., Design of Reactors for Biological System, Ind. Chem. Engr., Vol. 30(1), 1988.

III. Department of Electrical Engineering

1. Book :

S. K. Sen (Vice-Chancellor) : Principles of Electrical Machine Design (with Computer Programmes), Oxford and I.B.H. Publishing Co. Pvt. Ltd.

2. S. K. Paul, S. K. Basu, U.S.I. Lazra :

Novel Frequency Factor Method for Paper Frequency Measurement and Estimation of Load Shedding. I.E.E. Proc. Vol. 134, pt. C, No. 6, November 1987.

3. S. K. Basu, S. Choudhuri :

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4. S. P. Ghosal, S. K. Basu and S. Choudhuri :

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5. P. R. Bhattacharjee, S. K. Basu, J. C. Paul :

A Novel Design of Sequential Network to Facilitate Fault Detection, Proc. IEEE, Vo. 75, Nov. 7, July 1987.

6. P. K. Chattopadhyay, S. P. Ghosal :

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7. S. P. Ghosal :

8085 Microprocessor Based Speed Variation and Closed Loop Speed Control Proportional Type Feedback of a Small Instrumentation Motor. Electrical India, May 1987.

8. S. P. Ghosal :

Development of 8085 Microprocessor Based Sof ware Routines and their Applications to Transmission Line Impedance Measurement, Electri al India, June 1987.

9. S. P. Ghosal, S. K. Basu, S. Choudhury :

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Real Time Computation of Digital Resistance and Reactance for Distance Relaying by Digital Computer. Electrical India, June 1987.

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Study of Some Algorithms for Digital Distance Relaying. Approved for publication in the J.I.E. (1).

12. A. Sutradhar, Dr. K. Ray :

A Micro Computer Based Adoptive Controller Using On-Line Optimization Technique Communicated of I.E. (India) on 30. 11. 1987.

13. P. K. Mukherjee, A. Mukherjee, K. Bhattacharya :

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14. P. K. Mukherjee, M. K. Roy, S. S. Mukherjee, S. Sen Gupta :

An Investigation : dose time fraction relationships in head and neck concern. Indian Journal of Radiology and Imaging, June, 1987.

15. P. K. Mukherjee, A. Mukherjee, S. Chakraborty :

A Modified Method for More Efficient Transient Calculation, Published in the Journal "Modelling Simulation and Control-A" of AMSE, FRANCE, Vol. 14, No. 2, 1987.

16. A. Mukherjee :

Some Aspects of Stability of Solution of Circuits by Method of Characteristics. Conference record "3rd International Symposium" of IIST (I), at Calcutta, April 1987.

17. P. K. Mukherjee, S. Chakraborty, D. K. Chhetri :

Capacitive Probe as a Tool for the Measurement of Electrostatic A.C. Fields. Conference record "3rd International Symposium" of IIST(1) at Calcutta, April, 1987.

18. S. S. Mukherjee, P. K. Mukherjee, M. K. Roy :

A Dose Simulation Model in Intracavitary Therapy. AMPT Medical Physics Bulletin 12 (1987) 18–22.

19. S. S. Mukherjee, P. K. Mukherjee, M. K. Roy :

Optimization Model for Brachytherapy Dosimetry, published in the Journal of I.E. (1) Interdisciplinary Panel October, 1987.

20. Miss M. Guha, A. Rakshit :

Novel A. C. Bridge Method Employing Least Mean Square Adaptive Algorithm, published in I.E. (India) journal EL, Vol. 67, Pt. 1–4.

21. Mrs. M. Dutta, A. Rakshit, S. N. Bhattacharya and J. K. Choudhury :

An Application of LMS Adoptive Algorithm for a Digital A.C. Bridge, Proc. of IEEE, Instrumentation and Measurement Technology Conference, IMTC/87, BOSTON, Messachuset, U.S.A. Also published in IEEE Trans-IMDEC, 1987.

22. Dr. S. K. Biswas :

Performance of Improved Dual Current Source Inverter for Induction Motor Drives, published in the Journal of IE (1) April, 1987.

23. Dr. S. K. Biswas :

A New PWM Control Method for Three Phase Autosequentially Commutated Current Source Inverters, IEEE Trans. 1A, May/June 1987.

24. Dr. S. K. Biswas and B. Basak :

Simple and Versatile Base Drive Circuit for Power Transistors, published in the Journal of IE (1), June, 1987.

25. Dr. S. K. Biswas, B. Basak :

A Fast Acting Detector for Abnormal Output Voltages of an UPS System. Intl. Journal of Electronics, June 1987.

26. A. N. Sanyal :

"Modelling Approach to Turbogenerator Courier", Vol. 8–9, Oct–Dec., 1986 and January March 1987.

IV. Department of Electronics & Tele-Communication Engineering

1. S. K. Chowdhury, A. K. Bhattacharjee, P. Paul, A. Mukherjee and D. R. Poddar :

Semi-empirical method of analysis of rectangular microstrip antennas', ISELDECS, Vol. MT 1. 2., pp. 909, 911, 1987, Kharagpur I.I.T., India.

2. S. K. Chowdhury, A. K. Bhattacharjee, S. R. Bhadra Chowdhury and D. R. Poddar :

'Input impedance of rectangular microstrip antennas' Proc., IEE, part H,U.K. (to be published).

3. S. K. Chowdhury, S. R. Bhadra Chowdhury, A. K. Bhattacharjee and D. R. Poddar :

'Coupling between microstrip antennas' University of Colorado, Boulder, January 1988, U.S.

4. S. K. Chowdhury, A. K. Bhattacharjee, S. R. Bhadra Chowdhury and D. R. Poddar :

'Equivalence of radiation properties of square and circular microstrip patch antennas' IEEE Trans. on Antennas and Propagation, U.S.A. (to be published).

5. S. K. Chowdhury, P. Paul, A. Mukherjee, A. K. Bhattacharjee and D. R. Poddar :

'Some investigations on the effect of variation of the location of feed-point on impedance of rectangular microstrip antennas', National Symposium on Physics of Electronic Communication, Department of Physics, Burdwan University, Burdwan-713104, West Bengal, India, Dec. 27–29, 1987, pp. 79–80.

6. S. K. Chowdhury, S. R. Bhadra Chowdhury, A. K. Bhattacharjee, A. Mukherjee, P. Paul, and D. R. Poddar :

'Mutual coupling between microstrip antennas' National Symposium on Physics of Electronics Communication, Department of Physics, Burdwan University, Burdwan—713104, West Bengal, India, Dec. 27–29, 1987, pp. 69–70.

7. A. Dutta :

'An innovation to improve the sensitivity of fibre optic sensors' in the Proceedings of the First Indian Engineering Congress, Calcutta 1987.

8. A. Dutta :

'Hot electron conductivity characteristics of II-VI compound semiconductors', in the Procee dings of Solid State Physics Symposium, BARC, Bombay 1987.

9. A. Dutta :

'High field microwave incremental conductivity characteristics of II-VI compound semiconductors at 77K', in the Proceedings of Solid State Physics Symposium, BARC, Bombay, 1987.

10. A. Dutta :

'An empirical relationship for the field dependence of electron mobility in II-VI compound semiconductors', in the Proceedings of Solid State Physics Symposium, BRAC, Bomaby 1987.

11. A. Dutta :

'Principles and applications of optical phase conjugation' in the Proceedings of 16th DSI (Optical Society of India), Symposium, Calcutta 1988.

12. A. Dutta :

'Digital optical computer : Technique and system' in the Proceedings of 16th DSI (Optical Society of India) Symposium, Calcutta 1988.

13. K. P. Ghatak and M. Mondal :

'Theoretical analysis of the Einstein relation in Ultrathin films of degenerate ternary chalcopyrite semiconductors' in Thin Solid Films, (U.K.), 148,p. 219, 1987.

14. K.P.Ghatak, N.Chatterjee, and M.Mondal :

'Theoretical analysis of the effective electron mass in ultrathin films of ternary chalcopyrite semiconductors in the presence of crossed electric and magnetic fields', in Journal of Low Temperature Physics (U.K.), 66, p. 151, 1987.

15. K. P. Ghatak, N. Chatterjee, and M. Mondal :

'Theoretical analysis of the effective carrier mass in inversion layers on II-VI semiconductor', in Physics Status Solidi (b), (GERMANY), 138, p. K25, 1987.

16. K. P. Ghatak and M. Mondal :

'Theoretical analysis of the effective electron mass in n-channel inversion layers on tennary chalcopyrite semiconductors', in Physics Status Solidi (b), (GERMANY), 139, p. 185, 1987.

17. K. P. Ghatak, and M. Mondal :

'Theoretical analysis of the Einstein relation in ultrathin films of bismuth; in Journal of Physics C, Solid State Physics, (U.K.), 20, p. 1671, 1987.

18. K. P. Ghatak and S. N. Biswas :

'Theoretical analysis of the thermoelectric power in p-channel inversion layers on Si in the presence of a quantising magnetic field', in Physics Status Solid (b), 140, p. K 107, 1987.

19. K. P. Ghatak, N. Chatterjee and M. Mondal :

'Einstein relation in kane-type semiconductors' in Journal of Applied Physics, (U.S.A.) (Galley proof sent).

20. K. P. Ghatak and M. Mondal :

'On the gate capacitance in n-channel inversion layers on ternary semiconductors' in Journal of Applied Physics, (U.S.A.) (Gally proof sent).

21. K. P. Ghatak, N. Chattopadhyay and M. Mondal :

'Effect of surface electric field on the gate capacitance in MOS structures of $A_3II\ B_1V$ materials in Applied Physics, A, (Springer-Verlaz) (Galley proof sent).

22. K. P. Ghatak and M. Mondal :

'Effect of an arbitrarily oriented quantizing magnetic field on the field emission from $A_3II\ B_1V$ compound' in Journal of Magnetism and Magnetic Material (U.S.A.), (Galley proof sent).

23. K. P. Ghatak and M. Mondal :

'Theoretical study of the effective electron mass in ternary chalcopyrite semiconductors in the presence of crossed electric and quantizing magnetic field', in Zeitschrift fur Physik 3, Condensed Matter (GERMANY), 70, 471 (1988).

24. K. P. Ghatak and M. Mondal :

'On the Einstein relation in n-channel inversion layers on ternary semiconductors under magnetic quantization', in Physica Status Solid (b), (GERMANY) (Galley proof sent).

25. K. P. Ghatak and M. Mondal :

'On the photoemission from n-Ge' in Solid State Electronics, (U.S.A.) (Galley proof sent).

26. N. K. Mukherjee, H. Saha, D. Mukherjee, and R. K. Sathpathy :

'Design of a 25 Kwp solar photovoltaic system for a forest lodge in India', First International Conference on Power sources and supplies, London, 28th to 30th April 1987.

27. R. Nandi :

'Noval insensitive functional immittance conversion with voltage/current followers', Microelectronics JI. (U.K.), pp. 35–38, March–April, 1987.

28. R. Nandi :

'Precise realisation of an insensitive floating negative admittance converter', Electronics Letters (U.K.), pp. 775–777, July, 1987.

29. R. Nandi :

NIC using current follower and its applications in variable—phase delay-equalizers', 5th International Workshop on Integrated Electronics and Photonics in Communications, U.S.A., 1987.

30. R. Nandi :

'A novel floating negative immittance converter', Proc. IEE (G), J1. ECS (U.K.), pp. 236–238, October, 1987.

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Multiple Scattering Theory and Elastic and Dielectric Properties of Alkali halide solid solutions (Physics Status Solidi).

DOCTORATE DEGREE AWARDED

Sl. No.	Date of award of the Degree	Name of the Candidate	Degree	Name of the Supervisor(s)	Title of the Thesis
					FACULTY OF ARTS
BENGALI					
1.	4/11. 4. 87	Smt. Kanchan Kuntala Mukhopadhyay	Ph.D. (Arts)	Dr. Suresh Chandra Moitra *Reader in Bengali, J.U.*	"Adhunik Bangla Kabita O Kabi Amiya Chakraborty".
2.	26. 8/2. 9. 87	Md. A.T.M. Nurur Rahaman Khan	Ph.D. (Arts)	Dr. Suresh Chandra Moitra *Reader in Bengali, J.U.*	"Syed Mustaba Ali O Tar Sahityakriti".
COMPARATIVE LITERATURE					
1.	11/18. 11. 87	Smt. Mary Alice Hughes	Ph.D. (Arts)	Dr. Naresh Guha *Prof. of Comp. Literature, J.U.*	"Epic women characters in the Indo European tradition with special reference to India and Ireland".
ECONOMICS					
1.	21. 5. 87	Sri Vaskar Saha	Ph.D. (Arts)	Sri Bipul Malakar *Lecturer in Economics, J.U. and* Dr. M. N. Pal *Associate Prof. Indian Statistical Institute,* 203, *B. T. Road, Cal*-35	"Regional analysis of Industrial Production".
2.	12/19. 8. 87	Smt. Arundhati Sinha	Ph.D. (Arts)	Dr. (Mrs.) Debjani Sarkar *Prof. of Economics, J.U.*	"A Study of investment and profitability in Indian Jute Industry".
3.	30/3//8. 4. 88	Sri Baroda Charan Sharma	Ph.D. (Arts)	Dr. Ambica Prosad Ghosh *Prof. of Economics, J.U.*	"Impact of Fisheries on the Development of lower Sundarban Delta—an ecological approach".
ENGLISH					
1.	16/23. 9. 87	Sri Subhas Chandra Saha	Ph.D. (Arts)	Dr. Visvanath Chatterjee *Prof. of English, J.U.*	"Nineteenth Century English Poetry of Bengal".
2.	16/23. 9. 87	Sri Buddhadeb Banerjee	Ph.D. (Arts)	Dr. Visvanath Chatterjee *Prof. of English, J.U.*	"The novels of Mrs. Gaskell : A critical study".
3.	30. 12. 87	Smt. Urmila Chakraborty (Nee' Roy)	Ph.D. (Arts)	Dr. (Mrs.) Jasodhara Bagchi *Prof. of English, J.U.*	"Experience into Art : A study of Sylvia Plath's Poetry".

Sl. No.	Date of award of the Degree	Name of the Candidate	Degree	Name of the Supervisor(s)	Title of the Thesis
4.	20. 1. 88	Sm. Bharati Banerjee (Nee' Roy)	Ph.D. (Arts)	Dr. (Mrs.) Indrani Halder *Reader in English, J.U.*	"The impact of the Cinema on English fiction writing in the thirties, with special reference to Isherwood, Orwell and Graham Greene".
5.	20. 2/2. 3. 88	Sri Muktinath Chattopadhyay	Ph.D. (Arts)	Prof. Debabrata Mukherjee *Prof. of English, J.U.*	"Charles Lamb—Dramatic theory and practice".
HISTORY					
1.	21. 5. 87	Sri Saikat Bandopadhyay	Ph.D. (Arts)	Dr. S. K. Maity *Reader in History, J.U.*	"A study of early Brahmi Script (3rd Century B.C. to 1st Century A.D.)".
2.	12/19. 8. 87	Smt. Papia Chakraborty	Ph.D. (Arts)	Prof. Nemai Sadhan Bose *Vice-Chancellor, Viswa Bharati University, Santineketan*	"Hindu response in Bengal to the Nationalist ferment (1909–1935)".
3.	12/19. 8. 87	Smt. Krishna Kundu	Ph.D. (Arts)	Dr. (Mrs.) Bela Lahiri *Prof. of History, J.U.*	"The Kalacheris of Northern and Central India".
4.	20. 1. 88	Sri Rathindra Nath Mitra	Ph.D. (Arts)	Dr. (Mrs.) Bela Lahiri *Prof. of History, J.U.*	"The social condition of Bengal during the Sena period".
5.	16. 3. 88	Sri Ajay Ranjan Chakraborty	Ph.D. (Arts)	Dr. Md. Gamaruddin *Reader & Head, Dept. of Islamic History & Culture, Calcutta University* & Dr. Amalendu De *Prof. of History, J.U.*	"A study in the history of medieval Indian Diamonds".
6.	*16. 3. 88*	*Smt. Jhunu Bagchi (Nee' Chakraborty)*	*Ph.D. (Arts)*	*Dr. S. K. Maity Reader in History, J.U.*	"A study of the inscriptions of Eengal (Pala period cir 750 to cir 1150 A.D.)".
PHILOSOPHY					
1.	*12/19. 8. 87*	*Smt. Arundhati Mukhopadhyay*	*Ph.D. (Arts)*	Dr. Kalyan Kumar Sengupta *Reader in Philosophy, J.U.*	"On linguistic competence—A critical analysis of chomsky".
2.	20. 2/2. 3. 88	Sri Ranjan Mukhopadhyay	Ph.D. (Arts)	Dr. Pranab Kumar Sen *Prof. of Philosophy, J.U.*	"The Justification of deduction".
3.	16. 3. 88	Smt. Mahasweta Choudhury	Ph.D. (Arts)	Dr. Debiprasad Chattopadhyay *Prof. of Philosophy, J.U.*	"Epistemology with or without a knowing mind—A Reppraisal of Popper's theory of knowledge".
4.	16. 3. 88	Sri Kanaidas Ghosh	Ph.D. (Arts)	Sri Hiranmoy Banerjee *Reader in Philosophy, J.U.*	"Some proposed Application of Deviant Logic : A Philosophical Enquiry".

Sl. No.	Date of award of the Degree	Name of the Candidate	Degree	Name of the Supervisor(s)	Title of the Thesis
SANSKRIT					
1.	*4/11. 4. 87*	*Sri Jayanta Kumar Chakraborty*	*Ph.D((Arts)*	Dr. (Mrs.) Nandita Banerjee *Reader in Sanskrit, J.U.*	"The problem of indeterminate perception in Indian Philosophy".
2.	22. 7/5. 8. 87	Sri Biswarup Saha	Ph.D. (Arts)	Dr. Mrinal Kanti Bandyopadhyay *Lecturer in Sanskrit, Burdwan University, Burdwan*	"Nyayamate Sabdartha Sambandhya Samiskha".
3.	22. 7/5. 8. 87	Sri Arun Kumar Chakraborty	Ph.D. (Arts)	Dr. S. Goswami *Prof. of Sanskrit, J.U.*	"Nyayadarsane Karanata Vichar".
4.	22. 7/5. 8. 87	Sri Nrisinha Prasad Bhaduri	Ph.D. (Arts)	Dr. (Mrs.) Sukumari Bhattacharya *Prof. of Sanskrit, J.U.*	"Mystery plays in Sanskrit with special reference to Krisnaite plays".
5.	11/18. 11. 87	Sri Sambhu Nath Samanta	Ph.D. (Arts)	Dr. Ramaranjan Mukherjee *Prof. of Sanskrit, J.U.*	"Role of Inference in interpretation of poetry".
6.	30. 12. 87	Smt. Bul Bul Chattopadhyay	Ph.D. (Arts)	Dr. Manabendu Banerjee *Lecturer in Sanskrit, J.U.*	"Murari Gupta O Srikrishna Chaitanya Charitamritam".
7.	30. 12. 87	Sm. Atreyee Chakraborty	Ph.D. (Arts)	Dr. (Mrs.) Chinmayi Chatterjee *Prof. of Sanskrit, J.U.*	"Studies in the evolution of the concept of female Dieties".
8.	20. 1. 88	Sm. Supriya Banik	Ph.D. (Arts.)	Dr. Ramaranjan Mukherjee *Prof. of Sanskrit, J.U.*	"Visvanatha's analysis of the process of verbal testimony".
9.	24. 2/2. 3. 88	Sm. Lakshmi Saha	Ph.D. (Arts)	Dr. Rabisankar Banerjee *Reader of Sanskrit, J,U,*	"Alamkara Ratnakara—a study".

FACULTY OF ENGINEERING & TECHNOLOGY

CIVIL ENGINEERING					
1.	16. 3. 88	Sri Himadri Guha	Ph.D. (Engg.)	Dr. Niloy Chaudhuri *Prof. of Civil Engg., J.U.*	"A methodology for economic selection of Air Pollution Control equipment for Urban Power Plants in India with Special reference to Calcutta".
ELECTRICAL ENGINEERING					
1.	4/11. 4. 87	Sri Samar Bhattacharyya	Ph.D. (Engg.)	Dr. Tapan Kumar Ghoshal *Prof. of Electrical Engg.. J.U.* & Dr. Kalyan Kumar Datta *Reader in Electrical Engg., J.U.*	"A system for electronics Processing and editing of Bengali and other Indian Language texts".

Sl. No.	Date of award of the Degree	Name of the Candidate	Degree	Name of the Supervisor(s)	Title of the thesis
2.	21. 5. 87	Sri Anjan Rakshit	Ph.D. (Engg.)	Dr. S. N. Bhattacharyya *Prof. of Electrical Engg., J.U.*	"Some aspects of digital signal processing".
3.	30. 3/8. 4. 88	Sri Alok Kumar Ghosh	Ph.D. (Engg.)	Dr. M. K. Mukherjee *Prof. of E. & T.C.E., J.U.* & Dr. P. K. Mukherjee *Prof. of Electrical Engg., J.U.*	"Some studies on electrophotography involving multidielectric receptors".
ELECTRONICS & TELE-COMMUNICATION ENGINEERING					
1.	12/19. 8. 87	Sri Aditya Bagchi	Ph.D. (Engg.)	Dr. Anup Kumar Bandopadhyay *Reader in E & T.C.E., J.U.*	"Some studies on multipath routing techniques under reliability constraint in Computer communication networks".
2.	20. 1. 88	Sri Pranay Chaudhuri	Ph.D. (Engg.)	Dr. Sukumar Ghosh *Prof. of E. & T.C.E., J.U.*	"Alograthims for some graph problems on parallel and distributed computation models".
FOOD TECHNOLOGY & BIO-CHEMICAL ENGINEERING					
1.	4/11. 4. 87	Smt. Mira Debnath	Ph.D. (Engg.)	Dr. S. K. Majumdar *Prof. of F.T.B.E., J.U.*	"Studies on production and properties of glucose isomerase from streptomyces kanamyceticus".
2.	4/11. 4. 87	Sri Sudev Kumar Mandal	Ph.D. (Engg.)	Dr. B. N. Srimani *Prof. of F.T.B.E., J.U.*	"Jute fibre as microbial air filter in place of glass wool".
3.	21. 5. 87	Sri Subrata Basu	Ph.D. (Engg.)	Dr. D. K. Chattoraj *Prof. of F.T.B.E., J.U.*	"Study of fish protein in edible oil/water dispersion system and related food preparations".
4.	16/23. 9. 87	Smt. Lalitagauri Ghosh (Nee' Roy)	Ph.D. (Engg.)	Dr. S. K. Majumdar *Prof. of F.T.B.E., J.U.*	"Microbiological reduction of quininone to quinidine".
MECHANICAL ENGINEERING					
1.	4/11. 4. 87	Sri Bimal Kumar Basak	Ph.D. (Engg.)	Dr. B. K. Mallick *Prof. of Production Engg., J.U.*	"Value Engineering in Product Development".
PHARMACY					
1.	22. 7/5. 8. 87	Sri Jayanta Chattopadhyay	Ph.D. (Pharm.)	Dr. Sanat Kumar Basu *Reader in Pharmacy, J.U.*	"Studies on some azaheterocyclic compounds and several 1-amino acridine salt as possible antibacterial agents".

Sl. No.	Date of award of the Degree	Name of the Candidate	Degree	Name of the Supervisor(s)	Title of the Thesis
2.	22. 7/5. 8. 87	Sri Tanmoy Bera	Ph.D. (Pharm.)	Dr. A. N. Bhaduri *Prof. of Pharmacy, J.U.*	"Some aspects of the metabolism of L-arginine and L-ascrobic and in the promostigote from of Leishonania donovani, the consative organism of Kala-Azar".
3.	11/18. 11. 87	Sri Chandra Kanta Chakrabarti	Ph.D. (Pharm.)	Dr. B. D. Chatterjee *Prof. & Head, Calcutta School of Tropical Medicine, Calcutta and* Dr. (Mrs.) Sujata Ghosh Dastidar *Prof. of Pharmacy, J.U.*	"Non-clostridial Anasrobes in human infections."
4.	11/18 11. 87	Sri Asim Kumar Debnath	Ph.D. (Pharm.)	Dr. A. U. De *Prof. of Pharmacy, J.U.*	"Rational design of some possible anti-neoplastic agents through synthesis, biological evaluation and quantitative structure activity relationship studies".
5.	20. 1. 88	Sri Anindya Kumar Mondal	Ph.D. (Pharm.)	Dr. Sadhan Kumar Dutta *Prof. of Pharmacy, J.U.*	"Studies on Multi-Enzyme preparations in Pharmaceutical formulations".
6.	16. 3. 88	Sri Arup Mukherjee	Ph.D. (Pharm.)	Dr. S. C. Lahiri *Prof. of Pharmacy, J.U.*	"Investigation on some non-sterodial anti-inflamatory agents".

FACULTY OF SCIENCE

CHEMISTRY					
1.	21. 5. 87	Smt. Sumita Chakraborty (Nee' Roy)	Ph.D. (Science)	Dr. Esahak Ali *Scientist, I.I.C.B., Cal-32*	"Studies on the synthesis of some indole alkaloids".
2.	21. 5. 87	Smt. Zakia Khatun	Ph.D. (Science)	Dr. Sadhan K. Datta *Prof. of Pharmacy, J.U.*	"Studies on production of Newer penicillines and their pharmaceutical evaluation".
3.	22. 7/5. 8. 87	Sri Rabindra Nath Datta	Ph.D. (Science)	Dr. D. K. Basu *Reader in Macromolecules, I.A.C.S., Cal-32*	"Studies on accelarated vulcanization of natural rubber".
4.	22. 7/5. 8. 87	Sri Narayan Chakraborti	Ph.D. (Science)	Dr. A. B. Chatterjee *Reader in Chemistry, J.U.*	"Effect on chelation of schiff bases with transition metal ion on substitution".
5.	22. 7/5. 8. 87	Sri Asok Nath Mondal	Ph.D. (Science)	Dr. A. Chatterjee *Prof. of Chemistry, J.U.*	"Synthetic studies on some heterocyclic compounds".
6.	22. 7/5. 8. 87	Sri Ashutosh Ghosh	Ph.D. (Science)	Dr. Nirmalendu Roy Choudhury *Prof. of Inorganic Chemistry, I.A.C.S., Cal-32*	"Thermal studies on metal complexes of nitrogen donor ligands in solid state".

Sl. No.	Date of award of the Degree	Name of the Candidate	Degree	Name of the Supervisor(s)	Title of the Thesis
7.	22. 7/5. 8. 87	Sri Balai Chandra Basak	Ph.D. (Science)	Dr. K. P. Sen Sarma *Reader in Chemistry, J.U.*	"Study and applications of N. N. Dimethallye dithio carbamoyl hydrozine as an analytical reagent".
8.	12/19. 8. 87	Sri Swapan Kumar Saha	Ph.D. (Science)	Dr. P. Banerjee *Reader in Inorganic Chemistry, I.A.C.S., Cal-32*	"Studies on the kinetics and mechanism of redox and substitution reactions of some cobolt (iii) centered species".
9.	12/19. 8. 87	Smt. Rupali Chaudhuri	Ph.D. (Science)	Dr.(Mrs.) K. K. Rohatgi Mukherjee and Dr. B. B. Bhowmick *Prof. Dept. of Chemistry, J.U.*	"Charge transfer complexation of Dyes with surfactants and its effects on Photovoltage generation in a Photo-electro Chemical cell".
10.	12/19. 8. 87	Smt. Ratna Chakraborty (Nee' Dasgupta)	Ph.D. (Science)	Dr. U. R. Ghatak *Prof. of Organic Chemistry, I.A.C.S., Cal-32*	"Synthetic studies in bridge-ring and condensed cyclic sys ems".
11.	12/19. 8. 87	Sri Narendra Nath Ghosh	Ph.D. (Science)	Dr. B. M. Mondal *Prof. of Physical Chemistry, I.A.C.S., Cal-32*	"Phase transfer agent aided free radical polymerization and characterization of polymers".
12.	12/19. 8. 87	Sri Bimal Krishna Banik	Ph.D. (Science)	Dr. U. R. Ghatak *Prof. of Organic Chemistry, I.A.C.S., Cal-32*	"Synthetic studies in condensed cyclic and bridged ring systems".
13.	16/23. 9. 87	Sri Dipanjan Sengupta	Ph.D. (Science)	Dr. R. V. Venkateswaran *Reader in Organic Chemistry, I.A.C.S., Cal-32*	"Synthetic studies on sesquiterpene antibiotics".
14.	16/23. 9. 87	Md. Ahmed Ismail Mustafa	Ph.D. (Science)	Sri A. K. Chakraborty *Prof. of Chemistry. J.U.*	"Spectrophotometric studies of some ternary complexes of manganese (iii), tilanium (iv), vandium (v), molybdenum (vi), with hydroxamic acids and their analytical applications".
15.	16/23. 9. 87	Sri Anunay Samanta	Ph.D. (Science)	Dr. Mihir Choudhury *Prof. of Physical Chemistry, I.A.C.S., Cal-32*	"Kinetic and spectroscopic studies on the fluorescence of some organic compounds".
16.	11/18. 11. 87	Sri Amiya Kumar Mahapatra	Ph.D. (Science)	Dr. A. Chakraborty *Prof. & Head of Dept. Inorganic Chemistry,* I.A.C.S., Cal-32	"Synthesis, structure and reactivities of transition metal ago complexes".
17.	11/18. 11. 87	Sri Basanta Kumar Biswas	Ph.D. (Science)	Prof. Dr. M. N. Das 162|B|335, Lake Gardens, Cal-45	"Medium effects on Ion-Ion reactions".

Sl. No.	Date of award of the Degree	Name of the Candidate	Degree	Name of the Supervisor(s)	Title of the Thesis
18.	11/18. 11. 87	Sri Amitava Bagchi	Ph.D. (Science)	Sri Satya Ranjan Saha *Reader in Chemistry, J.U.*	"Studies on the coordination compounds of some derivatives of Biguanide (Imidodicarbonimidic diamide)".
19.	30. 12. 87	Sri Kalyan Kumar Das	Ph.D. (Science)	Dr. S. P. Bhattacharyya *Lecturer in Physical Chemistry, I.A.C.S., Cal-32*	"Semiempricism of molecular quantum mechanics. A study on the structure and utility of some approximate molecular orbital theories".
20.	30. 12. 87	Smt. Susmita Roy Chaudhuri	Ph.D. (Science)	Dr. B. C. Bhattacharyya *Reader in Chemistry, J.U.*	"Studies on isolation of higher co-ordinated complexes of Pd (ii) and Fe (iii) with some N-phenyl benzo-hydroxamic acids".
21.	30. 12. 87	Sri Jyoti Prakash Goswami	Ph.D. (Science)	Dr. S. P. Bag *Prof. of Chemistry, J.U.*	"Studies of coordination complex of metal oxo-cations".
22.	30. 12. 87	Sri Subrata Kumar Mondal	Ph.D. (Science)	Dr. K. K. Sengupta *Reader in Chemistry, J.U.*	"Kinetic and mechanism of some redox reactions involving metal ions and biologically important organic molecules".
23.	30. 12. 87	Smt. Sharmila Roy	Ph.D. (Science)	Dr. B. B. Bhowmick *Prof. of Chemistry, J.U.*	"Photo electrochemical cells containing Phenazine dye".
24.	30. 12. 87	Smt. Sudha Shakun Singh	Ph.D. (Science)	Sri A. K. Chakraborty *Prof. of Chemistry, J.U.*	"Solvent Extraction and Spectrophotometric estimation of Uranium and Ruthenium in presence of hydroxamic acids and organic hetero-cyclic bases".
25.	30. 12. 87	Sri Pran Krishna Datta	Ph.D. (Science)	Dr. A. K. Barua *Prof. & Dy. Director, Bose Research Institute, Cal.*	"Studies on natural carbocyclic compounds".
26.	20. 1. 88	Sri Arun Kumar Sarkar	Ph.D. (Science)	Dr. Nirmalendu Roy *Reader in Macromolecules, I.A.C.S., Cal-32*	"Structural Investigation of Bacterial Polysaccharide".
27.	16/23. 9. 87	Sri Debtosh Kundu	Ph.D. (Science)	Dr. D. Ganguli *Scientist, C.G. & C.R.I., Cal-32*	"Studies on the preparation and properties of chemically polymerized and peptized oxides".
28.	20. 1. 88	Sm. Sanghamitra Dey (Nee' Nandy)	Ph.D. (Science)	Dr. K. K. Sengupta *Reader in Chemistry, J.U.*	"Kinetics and Mechanism of the Oxidation of some aromatic aldehydes by metal ion oxidants".
29.	24. 2/2. 3. 88	Smt. Munna Chattopadhyay	Ph.D. (Science)	Dr. S. N. Banerjee *Scientist, I.I.C.B., Cal-32*	"Development of 99 MTC-amino acid complex for renal functional studies".

Sl. No.	Date of award of the Degree	Name of the Candidate	Degree	Name of the Supervisor(s)	Title of the Thesis
GEOLOGICAL SCIENCE					
1.	22. 7/5. 8. 87	Sri Samir Kumar Sengupta	Ph.D. (Science)	Dr. A. K. Chatterjee *Director, G.S.I., Calcutta*	"Stratigraphy and Palaeo-botany of Upper Gondwans in Rajmahal hills, Bihar, India".
MATHEMATICS					
1.	8/13. 6. 87	Sri Subhash Ch. Samanta	Ph.D. (Science)	Dr. J. C. Mishra, *Asstt. Prof. of Maths., I.I.T., Kharagpur and* Dr. S. K. Sarkar, *Reader in Maths., J.U.*	"Visco elasticity and its application to Bio-mechanics".
2.	22. 7/5. 8. 87	Sri Sukhendu Bikas Kar	Ph.D. (Science)	Dr. J. C. Mishra, *Asstt. Prof. of Maths., I.I.T., Kharagpur and* Dr. B. B. Chatterjee, *Prof. of Maths., J.U.*	"Problems of stress analysis in elastic and visco-elastic continua".
3.	22. 7/5. 8. 87	Sri Bidya Narayan Biswas	Ph.D. (Science)	Dr. P. C. Bhakta, *Prof. of Math., J.U.*	"Certain investigations on lebesugue stiettije's type integrals relative to some internal functions and related topics".
4.	12/19. 8. 87	Sri Gautam Kumar Sen	Ph.D. (Science)	Dr. D. K. Sinha *Prof. of Maths., J.U.*	"Studies in some aspects of solitary waves and solitions".
5.	12/19. 8. 87	Sri Malay Kumar Sen	Ph.D. (Science)	Dr. A. B. Roy, *Reader in Maths., J.U.*	"On some Inter-related problems of Boslean Algebra and graph theory".
6.	16/23. 9. 87	Sri Sudarshan Ch. Bhattacharyya	Ph.D. (Science)	Dr. K. S. Choudhury, *Prof. of Maths., J.U.*	"Some problems on reflection and diffraction of waves and pulses in continuous elastic medium".
7.	30. 12. 87	Sm. Manju Bhattacharya (Nee' Chatterjee)	Ph.D. (Science)	Dr. A. K. Mitra, *Prof. of Maths., J.U. and* Dr. S. P. Bandopadhyay, *Prof. of Maths., C.U.* 35. *Ballygunge Circular Rd., Cal.*	"Some problems on Universal Algebra".
8.	30. 12. 87	Sri Soumyendra Nath Das	Ph.D. (Science)	Dr. N. C. Das *Reader in Maths., J.U.*	"Some problems on Magneto elastic and thermo elastic interactions".
9.	24. 2/2. 3. 88	Smt. Bharati Dasgupta	Ph.D. (Science)	Dr. K. S. Chaudhuri, *Prof. of Maths., J.U.*	"Some aspects of Water Waves".

Sl. No.	Date of award of the Degree	Name of the Candidate	Degree	Name of the Supervisor(s)	Title of the Thesis
10.	24. 2/2. 3. 88	Smt. Santi Ghosh	Ph.D. (Science)	Dr. S. N. Giri, *Asstt. Prof. of Maths., David Hare Training College, 25/3, Ballygnuge Circular Road, Calcutta-19 and* Dr. A. B. Ray, *Reader in Maths., J.U.*	"Studies in error analysis of Mathematical Concepts".
PHYSICS					
1.	4/11. 4. 87	Sri Tarun Kanti Roy	Ph.D. (Science)	Dr. Suprokash Mukherjee *Prof. & Hd., Theoretical Nuclear Div., Saha Institute of Nuclear Physics, Calcutta-9*	"Deuteron stripping and pick up reactions from Nuclei including the effect of Breakup".
2.	21. 5. 87	Sri Syamal Kumar Das	Ph.D. (Science)	Dr. A. K. Pal *Reader in General Physics & X-rays, I.A.C.S., Cal-32*	"Some aspects of ferromagnetic and semi conducting thin films".
3.	21. 5. 87	Sri Aswini Ghosh	Ph.D. (Science)	Dr. B. K. Choudhury *Dept. of Magnetism, I.A.C.S., Cal-32*	"Preparation and characterisation of some semi conducting Glasses from the studies of various Physical properties".
4.	22. 7/5. 8. 87	Sri Amlan Jyoti Pal	Ph.D. (Science)	Dr. T. N. Mishra, *Prof. of Physics, I.A.C.S., Cal-32*	"Spectroscopic study of exciton-exciton interaction in mixed organic crystals".
5.	22. 7/5. 8. 87	Smt. Keka Basu Chaudhury	Ph.D. (Science)	Dr. D. P. Sural *Prof. of Physics, J.U.*	"Studies on some electron capture process in atomic collisions".
6.	22. 7/5. 8. 87	Smt. Bipasha Sarkar	Ph.D. (Science)	Dr. Suprakash Ch. Roy, *Reader in Physics, BoseInstitute, Cal-9*	"Investigations on polarization involving elastics scattering of Photons".
7.	22. 7/5. 8. 87	Sri Tapan Kumar Sengupta	Ph.D. (Science)	Dr. S. D. Chatterjee *Emeritus Professor, J.U. and* Dr. S. Sen Gupta, *Dept. of Physics, Presidency College, Cal.*	"Studies of the induced conductivity at the surface of contact between semi conducting metallic oxides and metals".
8.	12/19. 8. 87	Sri Asok Kumar Nandi	Ph.D. (Science)	Smt. Purnima Sinha C/o. Capt. N. Sengupta 22/36, *Monoharpukur Rd., Cal-29*	"Structural studies of some ligands, metal ligand complex systems".
9.	12/19. 8. 87	Sri Lalit Kr. Bandopadhyay	Ph.D. (Science)	Dr. A. N. Basu *Prof. of Physics, J.U.*	"Studies on the dielectric properties of some ionic and covalent crystals".
10.	12/19. 8. 87	Sri Biswajit Ghosh	Ph.D. (Science)	Dr. S. Deb & Dr. M. K. Mukherjee *Prof., Dept. of E.T.C.E., J.U.*	"Some studies on the improvement of series resistence and its role in the measurement of CU_2 S-Cds Solar Cell Characteristics".

Sl. No.	Date of award of the Degree	Name of the Candidate	Degree	Name of the Supervisor(s)	Title of the Thesis
11.	16/23. 9. 87	Md. Safayet Karim Choudhury	Ph.D. (Science)	Dr. Sasabindu Sarkar *Reader in Theo. Physics, I.A.C.S., Cal-32*	"Studies on the properties of nuclear matter at different densities and temperatures using field theoreticals methods".
12.	11/18. 11. 87	Sri Susil Kumar Mondal	Ph.D. (Science)	Dr. A. S. Ghosh *Reader in Theo. Physics, I.A.C.S., Cal-32*	"Study of electron atom and positron atom collisions".
13.	11/18. 11. 87	Sri Swapan Kumar Datta	Ph.D. (Science)	Prof. H. N. Bose 36A, *Motilal Nehru Rd., Cal-29* & Dr. S. Deb *Prof. of I.T.C.E., J.U.*	"On the electronic and photoelectronic properties of lead-sctenide films".
14.	11/18. 11. 87	Sri Amal Krishna Ghosh	Ph.D. (Science)	Dr. A. Das, *Asstt. Prof. Dept. of Maths., Chandernagore Govt. College, Hooghly and* Dr. A. Choudhury *Prof. of Physics, J.U.*	"Electric induction and stresses in Piezo-electric bodies due to electric field and/or mechanical forces".
15.	11/18. 11. 87	Smt. Barnali Govind Kundu	Ph.D. (Science)	Dr. P. K. Mukherjee *Reader in Optics, I.A.C.S., Cal-32*	"Application of Coupled Hartree-fock theory of atomic structure calculations".
16.	11/18. 11. 87	Sri Prabir Kumar Biswas	Ph.D. (Science)	Dr. A. N. Basu *Prof. of Physics, J.U.*	"Theoretical Investigations on optical, mechanical and thermal properties of Polymers".
17.	30. 12. 87	Smt. Jayasree Basak	Ph.D. (Science)	Dr. S. N. Chatterjee *Prof. & Head, Bio-Physics Div. Saha Institute of Nuclear Physics, Calcutta-37*	"Studies on the DNA Lesions induced by Furazolidone".
18.	30. 12. 87	Sri Mrinal Kanti Mukhopadhyay	Ph.D. (Science)	Dr. Sankar Sengupta *Reader in Physics, J.U.*	"Theoretical Investigations on Isotope-shifts".
19.	30. 12. 87	Smt. Urmi Ghosh	Ph.D. (Science)	Dr. T. N. Mishra *Prof. of Physics, I.A.C.S., Cal-32*	"Spectroscopic investigations of Solid state Photo polymerization".
20.	30. 12. 87	Sri Subhasis Mukhopadhyay	Ph.D. (Science)	Dr. (Mrs.) Ibha Chatterjee *Reader in Solid State & Molecular Physics Division Saha Institute of Nuclear Physics, Calcutta-9*	"Some investigations on phase transitions using correlated effective field theory".
21.	30. 12. 87	Sri Swapan Kumar Saha	Ph.D. (Science)	Dr. Badal Ch. Khanna *Lecturer, Saha Institute of Nuclear Physics, Cal-9*	"Studies on chemisorption of atoms and molecules on transition metal surfaces".

Sl. No.	Date of award of the Degree	Name of the Candidate	Degree	Name of the Supervisor(s)	Title of the Thesis
22.	20. 1. 88	Smt. Manasi Das (Nee' Roy Choudhury)	Ph.D. (Science)	Dr. A. K. Pal *Reader in Physics, I.A.C.S., Calcutta-32*	"EPR studies on Phase transition of Solids".
23.	20. 1. 88	Sri Amit Kumar Giri	Ph.D. (Science)	Prof. G. B. Mitra *Emeritus Scientist, I.A.C.S., Calcutta-32*	"Theoretical prediction of Physical properties of Dilute alloys and solid solutions and their Experimental verification".
24.	20. 1. 88	Smt. Barnana Ghosh	Ph.D. (Science)	Dr. Rajkumar Roy Choudhury *Indian Statistical Institute, Calcutta-35 and* Dr. A. Roy Choudhury *Reader in Physics, J.U.*	"Application of dynamical groups and scaling variational method in perturbation problems of quantum mechanics".
25.	24. 2/2. 3. 88	Sri Ashok Chatterjee	Ph.D. (Science)	Dr. Tapan Kumar Mitra *Reader in Theo. Physics, I.A.C.S., Cal-32*	"On large—N expansions in quantum mechanics".
26.	16. 3. 88	Sri Gouranga Ch. Saha	Ph.D. (Science)	Dr. S. C. Mukherjee *Reader, I.A.C.S., Cal-32*	"Electron capture process in the intermediate and high energy region".
27.	16. 3. 88	Sri Pinaki Roy	Ph.D. (Science)	Dr. Rajkumar Roy Choudhury *Indian Statistical Institute, Cal-35*	"On super symmetry breaking in external fields and related problems".
28.	30. 3/8. 4. 88	Sri Anoop Kr. Mukhopadhyay	Ph.D. (Science)	Dr. Dipak Chakraborty *Scientist, C.G. & C.R.I., Cal-32*	"Investigations on parameters affecting fracture toughness of silicon nitride and its composites".
29.	30. 3/8. 4. 88	Smt. Jayasree Mukherjee	Ph.D. (Science)	Dr. A. Roy Choudhury *Reader in Physics, J.U.*	"On some classical and semi classical aspects of soliton interaction".
LIFE SCIENCE					
1.	12/19. 8. 87	Smt. Tapasri Chakraborty	Ph.D. (Science)	Prof. A. N. Chakraborty *Dept. of Medical Microbiology* 244B, *A.J.C. Bose Rd., Cal. and* Dr. (Mrs.) S. Ghosh Dastidar *Prof. of Pharmacy, J.U.*	"Studies on some Pathogenic factors and drug resistance factors in vibrio Parahacmolyticus".
2.	24. 2/2. 3. 88	Sm. Sikha Bandopadhyay	Ph.D. (Science)	Dr. (Mrs.) Malaya Gupta *Prof. of Pharmacy, J.U.*	"Studies on Liposome incapsulation of anti-cancer drug on certain animal tumors".

COLLABORATION, CONSULTANCY AND TESTING SERVICES

FACULTY OF ARTS

Economics :

Selection of Thurst Areas in Research—Project in collaboration with IIEP (Paris) NIEPA (Delhi).

Library & Information Science :

Different libraries institutions of Calcutta as well as outside Calcutta have collaborated with the department in various ways. Mention is to be made of Bengal Library Association, Indian Association of Special Libraries and Information Centres, Calcutta University, British Council Library, American Centre Library, Asiatic Society and National Library.

FACULTY OF ENGINEERING & TECHNOLOGY

Architecture :

Calcutta State Transport Corporation has entrusted the departmental consultancy Cell with design project of a multistoreyed building at Territy Bazar. The work is in progress.

Civil Engineering :

Following major consultancy projects were undertaken during the year :

(*i*) Foundation design for Large Diameter oil storage Tanks on stone Column Foundation system at Haldia—Indian Oil Corporation Ltd.

(*ii*) Design of High Embankments on Doubling of Railway Train near Farakka—Eastern Railways.

(*iii*) Instrumentation for study of Braced open cuts for Calcutta Metro Railways, Calcutta.

(*iv*) Investigation of Distress in the Buildings at Salt Lake Depots—Calcutta State Transport Corporation.

(*v*) Design of Foundation for multi-storeyed buildings with deep basement for ITC Centre, Calcutta.

(*vi*) Construction Control for laying of base courses for the Synthetic Track at Salt Lake Stadium, Calcutta.

(*vii*) Evaluation subgrade and pavement design for Durgapur Express way.

(*viii*) Construction of underground market at Satyanarayan Park, Calcutta.

(*ix*) Design of High Grade Concrete mix for local Materials in Bhutan.

(*x*) Auditorium Building for ONGC at Tripura.

(*xi*) Investigation of Distress of Bus Terminal Building at Kasba for CSTC.

(*xii*) Design of Antena Foundation for P & T INSAT IB.

Collaboration with National Remote Sensing Agency, Hyderabad and Central Water Power Research, Pune was made.

Chemical Engineering :

(*i*) A Project on battery research was sponsored by Messrs. Bharat Battery Manufacturing Co. Pvt. Ltd. to the University and a Research Centre was established to work on this project involving an investment of Rs. 7 lakhs by the sponsoror.

(*ii*) The Bureau of Indian Standards selected the Fuel laboratory of this department as the Testing

Centre for testing performances of LPG stoves and other combustion appliances under the supervision of Prof. G. K. Biswas.

Food Technology & Biochemical Engineering :

Collaboration has been made with the Bose Institute, Calcutta and Institute of Chemical Biology, Jadavpur for conducting M. Tech. (Biotechnology) classes on 'Genetic Engineering' 'Molecular Biology', 'Immunology' and 'Tissue Culture'.

Mechanical Engineering :

Collaboration has been made with TISCO, CESC, MECON, WBSEB, DST and UGC under supervision of Prof. M. Bhattacharyya.

Collaboration has been made with Nilratan Medical College & Hospital, Eastern Railway Orthopaedic Research Institute & Hospital and Spastic Society of Eastern India under the co-ordination of Prof. S. Pal.

Pharmacy :

Collaborative work has been undertaken with Biochemistry Dept. of Calcutta University, Chittaranjan Cancer Research Institute, Calcutta, Hindusthan Lever, National Institute of Health & Family Welfare and Indian Institute of Chemical Biology.

FACULTY OF SCIENCE

Physics :

The department has taken up an International Collaborative research programme with the following institutions :

(*a*) University of Eyon, France

(*b*) University of Santawder, Spain

(*c*) CRN (CNRS) Strassbour of France

Mathematics :

Collaborative Research Programme has been made with Third World Academy of Sciences.

Geological Science :

The department runs collaboratice Programme with the following institutions :

(*i*) Arizona State University, USA.

(*ii*) Kyushu University, Japan.

(*iii*) National Institute of Oceanography.

(*iv*) Benaras Hindu University.

(*v*) I.I.T., Kharagpur.

(*vi*) TIFR, Bombay.

(*vii*) Annamalai University, Tamilnadu.

(*viii*) Leoben Mining Institute, Austria.

(*ix*) Indian Statistical Institute.

FOREIGN VISITORS UNDER CULTURAL EXCHANGE PROGRAMME

1.	Dr. Ludevit Vegh Professor, Civil Engg. Technical Univ. Prague Czechoslovekia.	INDO–CZECH C E P	3. 7. 87 to 7. 7. 87
2.	Prof. Dr. Janusz Baliski Professor of Medicine, Univ. of Poznan, Poland.	INDO–POLISH C E P	13. 1. 88 to 24. 1. 88
3.	Dr. L. V. Bershov Professor of Ore Deposits, Petrology, Academy of Science, U.S.S.R.	INDO–USSR C E P	21. 1. 88 to 25. 1. 88
4.	Prof. Lionidovich Felix Chernousko, Head of the Dept. of Control Institute of Problems in Mechanics, Academy of Sc., U.S.S.R.	INDO–USSR C E P	28. 1. 88 to 18. 2. 88
5.	Dr. Georgievich Valery Grudestsky, Prof. and Chief of Laboratory, Institute of Problem of Mechanics Academy of Science, U.S.S.R.	INDO–USSR C E P	28. 1. 88 to 18. 2. 88
6.	Dr. (Mrs.) Elzbieta Walter, Lecturer in Bengali Warsaw University, Poland.	INDO–POLISH C E P	7. 1. 88 to 1. 2. 88
7.	Dr. (Mrs.) T. L. Sulitskaya, Teacher of History Pedagocial Institute, Moscow.	INDO–USSR C E P	5. 2. 88 to 16. 2. 88
8.	Dr. Andrei G. Volodin, Research Fellow, Institute of Oriental Studies Academy of Science, U.S.S.R.	INDO–USSR C E P	4. 2. 88 to 16. 2. 88
9.	Dr. Sixtus Hynie, Teacher of Pharmacology, Charles University, Prague.	INDO–CZECH C E P	14. 3. 88 to 21. 3. 88
10.	Dr. (Mrs.) T. L. Shaumyan, Sr. Research Fellow, Institute of Oriental Studies, U.S.S.R.	INDO–USSR C E P	15. 3. 88 to 26. 3. 88

CONFERENCE / SEMINAR / WORKSHOP / SYMPOSIUM ORGANISED

FACULTY OF ARTS

Department of Comparative Literature :

The Department organised one-day Symposium on 'National and Comparative Literature' with three international guest in September 1989.

The Department also organised a DSA Seminar on 'Literary Historiography in India' during the year under report.

Department of English :

The Department organised a seminar on 'Shakespeare' wherein Professor N. Visvanathen, U.G.C. National Lecturer, now in Central University, Hyderabad, gave Lectures on the topic.

In the Department, Dr. Raman Selden, University of Lancaster, spoke on vecent critical theory in February, 1988 and Dr. Susie, Reader in English, C.I.E. F.O., Hyderabad and visiting Fellow, gave a talk on 'The disciplinary origin of English students in India'.

Department of International Relations :

A two-day seminar on 'India in the Eighties and Beyond' was organised in the Department on March 25–26, 1988.

Department of Sanskrit :

A seminar on 'Sati Riti' in Ancient India was organised in the department in November 1987.

FACULTY OF ENGINEERING & TECHNOLOGY

Architecture :

3-week Workshop on 'Peoples' Housing & Settlement' Design was held in the department with the collaboration of Housing Urban Develc pment Corporation (HUDCO), HSMI, IHS and Government of West Bengal.

Civil Engineering Department :

Workshop on 'Ganga Action Plan' in collaboration with Society of Civil Engineering was organised in the Department.

Food Technology & Bio-Chemical Engineering :

Under the supervision of Prof. Sunit Kumar Mukherjee a National Seminar on 'Low Cost Biotechnological Process for preservation of vegetables' was held at the University.

Mechanical Engineering :

3-day Interdisciplinary Course on 'Biomechanics for Medicos' was organised in the Department.

Metallurgical Engineering :

Seminar on 'Role of Metallurgical Engineering in the Traditional and Emaging Frontiers' of Metal Industries was held in the Dept. in February 1988.

Course on Transmission Electron Microscopy was organised in the department in April 1987.

USIC :

Lecture Course on use of Transmission Electron Microscope for Material Scientists was organised.

Short term on 'Training of Laboratory Assistants' and 'Instraental Techniques in Analytical Chemistry was conducted in the evening.

FACULTY OF SCIENCE

Department of Geological Science :

Organised Workshop on 'Teaching of Earth Sciences in the light of information explosion' held at Calcutta in March 1988.

Mathematics :

(a) National Seminar on 'Some aspects of Continuum Mechanics with special reference to Finite and Brendary Element Methods' held in the Dept. under DSA Programme, March 17–19, 1987.

(b) 'Regional application Course and Symposium in Applicable Discrete Mathematics', held in the Dept. sponsored by UNESCO and ICTP (Trieste, Italy) under DSA Programme, January 27–31, 1988.

(c) National Seminar on Operations Research and Mathematical Biosciences' held in the Department under DSA Programme, February 18–20, 1988.

Physics :

A workshop on 'Instructional Workshop on the Advanced Aspects of General Relativity' was organised by the Department in collaboration with Indian Association for Cultivation of Science in January 1988 under the directorship of Prof. Asit Banerjee.

FACULTY OF ARTS

Comparative Literature :

(a) **Sri Debipada Bhattacharyya** participated in a National Seminar, sponsored by UGC, on 'Value' in R. K. M. Institute of Culture, Calcutta, in August 8–9, 1987.

(b) **Prof. Amiya Deb** presented a paper at the Seminar on Literature and History : the African Experience at the Centre of the Linguistic & English, JNU in April 1987.

Presented three papers at the Seminar on Comparative Literature—Theory & Practice at the Indian Institute of Advanced Study, Simla, in June 1987.

Participated in a Seminar on Post World War Theories of Fiction at the Department of English, J.U., in November 1987.

Delivered three lectures on Literary History, Literary Theory and Comparative Literature at the Deptt. of German, M.S. University, Baroda, in November 1987.

At the Deptt. directed the symposium on National and Comparative Literature in Dec. 1987.

Presented paper at the Seminar on Recent Development in Humanities Theory at the American Studies Research Centre, Hyderabad, in January 1988.

Participated in the DDA Seminar on 'Literary Historiography in India' at the Department in March 1988.

(c) **Professor Nabaneeta Deb Sen** taught for a month at the Seniotic Institute of Toronto.

(d) **Professor Manabendra Bandopadhyay** presented three papers at the International Summer Institute of Seniotics at Toronto.

In a Seminar in the Department presented paper on Problems of Literary Historiography in Africa.

Participated in a Seminar at Pathbhaban, Calcutta and talked on 'Sukumar Roy O Sishu'.

(e) **Sri Pronabendu Das Gupta** delivered lecture on a Seminar on Tagore at Don Bosco School.

Participated in the Seminar organised by the Deptt.

(f) **Sri Subir Roychowdhury** delivered key-note address at a Seminar on Jagadish Gupta at Sahitya Academy in September 1987.

Presented a paper on the Problems of Periodisation of Bengali Literature at a Seminar organised by the Deptt.

(g) **Sri Swapan Majumdar** participated in a Seminar at Sahitya Academy, Delhi, in June 1987.

In Dec. '87 participated in the Seminar organised by the Deptt.

(h) **Sm. Arundhati Bandyopadhyay** delivered a talk on The Word in Theatre : Its Identity and Function at a Seminar in May 1987 at Nasik.

Participated in the symposium on "National and Comparative Literature, organised by the Department in December 1987.

Presented paper on Brecht Adoptations in Modern Bengali Theatre at the International Conference at the University of Honolulu, U.S.A., in January 1988.

Presented paper on Brecht Translations in Bengali : Exploring the Possibilities of Cultural Integration at the UGC Seminar in February 1988 at the University of Roorkee.

Participated in the DSA Seminar on Literary Historiography in India, organised by the Deptt. in March 1988.

(i) **Sm. Subha Das Gupta** presented a paper on The French School of Comparative Literature at the Seminar in the Indian Institute of Advanced Study, Simla, in June 1987.

Participated in the Seminar on National and Comparative Literature organised by the Deptt. in December 1987.

(j) **Sri Sibaji Bandopadhyay** participated in a Workshop organised by Painters' Front : Western Aesthetics.

Participated in a Seminar on "Girl Children" organised by CPNI.

Participated in the Seminars organised by Sukumar Mela and in a Seminar organised by the English Department of Kalyani University.

Economics :

(a) **S. D. Chakraborty, T. Das and S. Seth** presented a paper "Rural Development, Income Distribution and Demand for Energy in Rural Economy in South Bengal" at a Conference on Economics of Rural Development in Calcutta in April 1988.

(b) **Sri Biswajit Chatterjee** presented a paper at the 70th Annual Conference of the Indian Economics Association held at Jaipur in December 1987.

Participated in the International Visitor's programme in March–April 1988 and took part at the Seminar on 'USA and World Econom'. in Washington. Presented a paper at the 8th Annual Conference of the Bengal Economic Association in March 1988.

(c) **Sri Ajitava Raychoudhuri** gave a seminar on "Redistribution in a Two-Sector Model" at the Centre for Social Science Studies, Calcutta, in March 1988.

Was an invited participant at the Seminar on 'Indian Economy' held in Presidency College, in February 1988.

(d) **Sri S. Marjit** presented a paper on "Rationalizing Public-Private Joint Venture in an Open Economy—A strategic Frame Work at the 3rd Annual Conference held at Indian Statistical Institute, Delhi, in February 1988.

(e) **Sri A. Banerjee** presented a paper on "Capital Mobility and Unemployment" at the Seminar on Indian Economy held in the Presidency College in February 1988.

Participated in Restricted Courses at the National Seminar, UGC, in New Delhi.

English :

(a) **Sm. Jasodhara Bagchi** presented a paper on Positivism and Neo Brahmanism in Colonial Bengali at the International Seminar at Hyderabad.

(b) **Sm. Sheila Lahiri Chowdhury** participated in the Seminar on "Nineteenth Century : Towards Construction of New History at Hyderabad.

(c) **Sm. Indrani Halder** read a paper on "How Exclusive a in the Non-fictional Novel ?" at the International Seminar held at Burdwan University.

(d) **Prof. Mihir Bhattacharyya** presented a paper on Seigei Eisenstein and Representation of the People" at Seminar at the Gorkey Sadan, Calcutta, in April 1987.

In January 1988 presented a paper on Crisis in Indian Cinema and Role of the State at the Official Seminar of Filmotsav at Trivendrum.

Presented paper on the Impact of Mass Media on Popular Consciousness at the Seminar of Indian School of Social Sciences, Calcutta.

(e) **Prof. Jagannath Chakraborty** participated in the National Conference on Encyclopaedia, Calcutta, Regional Workshop on Literary Translation, Sahitya Academy, Calcutta, and SAARC Writers and Poets' Conference, Calcutta.

History :

(a) **Dr. Amalendu De** delivered a lecture on "Indo-Arab Relation from Early Times to the Present Day" at the Indo-Arab Cultural Association, Calcutta, in April 1987.

Delivered lecture on "Birsa Munda and Significance of Adibasi Rebellion" at Pragyananda Bhawan, Calcutta, in November 1987.

Delivered a lecture on "Marxism : Indian National and Linguistic Problem" at the Geological Survey of India, Calcutta, in December 1987.

Delivered Dwipen Ghose Smarak Baktrita at the Nabajatak Samskriti Parishad, Calcutta, in February 1988.

Delivered a lecture on "Swami Vivekanander Samajbhabna O Tar Prasangigata" at a Seminar held in the Moulana Azad College, Calcutta, in March 1988.

(b) **Dr. Chitrabrata Palit** spoke on Agrarian Labour in Bengal at the Asiatic Society of Bangladesh International Seminar on Rural Transition.

As Indian delegate participated at the Indo-Australian International Seminar (NISTADS) in New Delhi and chaired a session.

Philosophy :

(a) **Prof. Pranab Kumar Sen** participated in ICFR Seminar on the Philosophy of P. F. Strawson at Lucknow Academic Centre in December 1987.

Acted a Resource Person of Teaching Courses on Gilbert Pyle, Rudolph W.V. Quine and Donald Davidson at Refresher Courses for College and University Teachers organised by ICPR at Lucknow in Feb.–March 1988.

(b) **Prof. Sailaja Kumar Bhattacharyya** participated in the National Seminar at Banaras Hindu University in 1987 and at Hyderabad University in 1988.

(c) **Prof. Tushar Kanti Sarkar,** as an invited Resource Person delivered series of lectures on Analytical Philosophy and Epistemology at the Refresher Course for College and University Teachers organised by ICPR at Lucknow.

(d) **Prof. Kalyan Sen Gupta** participated and presented paper at the International Seminar on, Phenomenology and Existentation in Delhi in January 1988.

(e) **Dr. (Mrs.) Krishna Roy** participated and presented paper on Hermeneatics in Indian Philosophy at the International Conference organised by CARP (U.S.A.) and ICPR in New Delhi January 1988.

(f) **Dr. Shefali Moitra** presented paper and acted as Principal commentator at Bangiya Darsan Seminar in November 1987.

Participated at the Seminar on Art and Society organised by North Bengal University in Nov. 1987.

(g) **Dr. (Mrs.) Chhanda Gupta** presented paper on Phenomenology and Indian Philosophy organised by CARP and ICPR in January 1988 in New Delhi.

(h) **Dr. Amita Chatterjee** participated in the Logic Workshop held in the Department of Mathematics, Calcutta University.

(i) **Sri Tirthanath Bandopadhyay** acted as Principal Commentator at the International Seminar organised by 'Darsan O Samaj' in 1987.

(j) **Sm. Indrani Sanyal** participated in the Seminar organised by ICPR at Jadavpur, Rabindra Bharati and Calcutta University.

International Relations :

(a) **Prof. Arun Kumar Banerjee** presented a paper on the Development of Indian Navy at All India Seminar hosted by Jadavpur University in March 1988.

(b) **Miss Basanti Mitra** participated in the seminar on a New International Economic Order in New Delhi in March 1988 and in Calcutta in August 1987.

Miss Mitra attended the Seminar of International Law Association and participated in the discussion on Enforcement Human Rights in New Delhi in March 1988.

(c) **Dr. Baladas Ghosal** presented papers at three National and one International Seminar on Indira Gandhi Foreign Policy organised by Nehru Memorial Museum and International Institute for Asia Pacific Studies and on Sri Lanka organised by the Centre for Regional Studies

Participated as a convenor in the National Seminar organised by the Deptt. on India in the Eighties and Beyond : Domestic and Foreign Policy Dimensions in March 1988.

Library and Information Science :

(a) **Sri Amitava Chatterjee** attended a Short-term Course on Computer Application in Library and Information Work sponsored by NISSAT at Bangalore from June 15–July 24, 1987.

Delivered Extension Lectures on Notation in Library Classification, Zone Analysis and Designing of Classification Schedules at Utkal University, Bhubaneswar, in April 20–24, 1987.

Acted as Course Co-ordinator for Workshop on the Sources in Information Retrieval sponsored by NISSAT in collaboration with Jadavpur University held at GCRI, Calcutta, in December 23–26, 1987.

(b) **Sri Ramkrishna Saha** participated in the Advance-Level Course in Computer Application at Kerala University, Trivendrum, during May 18–June 25, 1987.

Acted as Course Director of the Workshop of the Working sponsored Public Libraries organised by BLA in Calcutta in March 7–25, 1988.

FACULTY OF ENGG. & TECH.

Civil Engineering :

(a) **Dr. N. Som** participated in the Indian Geotechnical Conference, Bangalore, in December 1987.

Participated in a Workshop on Computer Aided Design at IIT, Delhi, in March 1988.

(b) **Dr. R. D. Purkayastha** participated in the Indian Geotechnical Conference at Bangalore in December 1987.

(c) **Sri P. Bhattacharyya** participated in the Indian Geotechnical Conference at Bangalore in December 1987.

(d) **Dr. B. Sen Gupta** participated in the Second International Colloquiem on Concrete in Developing Countries, Bombay, in January 1988.

(e) **Prof. P. Som and Dr. B. N. Ghosh** attended the Indian Science Congress at Pune in January 1988.

Electrical Engineering :

(a) **Sri P. K. Chatterjee** presented a paper on Load Flow studies at the Staff Training Centre of WBSEB in 1987.

(b) **Prof. Sujoy Basu** presented a paper on Mathematical Representation of Wind Regime of South West Bengal by Weibull Function at the International Conference on Modelling and Stimulation in 1987.

Presented paper on Wind Electricity Generation—International and National Efforts in a Workshop on Wind Energy Technology in 1987.

Participated in the Seminar of National Electricity Code in 1987.

Presented paper on Incandecent Lamp : Past, Present and Future at the ISLE Seminar.

Electronics & Telecomm. Engineering :

(a) **Dr. C. K. Sarkar** attended and presented a paper at the International Conference on the Application of High Magnetic Field in Semiconductors at Wurzburz.

Presented a paper at the Conference on Microstructure Superlattices and Microdevices at Trieste (Italy).

Food Technology & Biochemical Engineering :

(a) **Prof. D. K. Chattoraj** delivered invited lecture on Protein Hydration in Third International Conference held at Aligarh Muslim University in December 1987.

In March 1988 visit ed the Nagoya University, Japan, and delivered invited lectures in the Nagoya and Fukuoka Universities arranged by Japan Chemical Society.

(b) **Dr. S. K. Mukherjee** participated in the Workshop on Biotechnology : Potential and Commercial Benefits in India at M. S. University, Baroda, in August 1987.

Mechanical Engineering :

(a) **Prof. B. N. Chanda** participated in International Symposium on Design of Hydraulic Structures held at Colorado State University in August 24–27, 1987.

(b) **Dr. S. K. Ghosh** participated at the 17th All India Conference on Engineering Materials & Equipment organised by the Association of Engineers (India) in February, 1988.

(c) **Prof. S. Pal** participated at the International Congress on Biomaterials in New York in June 1987.

Participated in All India Conference on Engineering Materials & Equipments held in Calcutta in February, 1988.

Participated in West Bengal Orthopaedic Association held in Calcutta in February, 1988.

(d) **Prof. B. Bose** delivered a Special Lecture on Water Resources Development at a Seminar at Maithon in May 1987.

Chaired two technical sessions at the National Seminar on Tribology and Terotechnology in Calcutta.

(e) **Sri Sandip Das** attended a 2-week Short-term Course on Two-Phase-Flow and Boiling-Heat-Transfer at IISC., Bangalore, in October 5–17, 1987.

Attended a 4-week Intensive Course on Theory and Application Microprocessor/Microcomputer in the Deptt. of Electronics & Telecomm. Engg. of the University during December 1987–January 16, 1988.

(f) **Dr. Samir Kumar Saha** participated in the International Seminar on "Innovation in Process Energy Utilisation" held in the University of Bath, U.K., in Sept. 16–18, 1987.

Participated in the UNESCO-SEFI International Symposium on "Innovative Methods in Technological Education" in the University of Paris, Orsay in Sept. 21–24, 1987.

(g) **Sri Ashutosh Bhattacharyya** participated in a 3-Day Engine Technology Symposium organised by the AVL, Austria, held at Delhi.

(h) **Prof. M. Bhattacharyya** delivered invited talk on "Some Aspects of Ultrasonic Testing in a Seminar organised by RDSO, C & W Railway and Eastern Railway held in Calcutta in January 19–20, 1988.

Delivered invited talk on Pressure Vessel Welding at the Directorate of Boiler, W.B.

Presented paper on "Value Engineering : Case Study" at the 17th All India Conference on Materials & Equipment.

Metallurgical Engineering :

(a) **Prof. B. Chakraborty** participated in a National Seminar of Institution of Foundrymen, held in Calcutta.

Attended the National Seminar on "Non-ferrous Metals : Its Problem and Prospect" held in Calcutta.

Participated in National Seminar on "Select Correct Steel" held in Calcutta.

(b) **Prof. A. K. Ghosh** presented two technical papers at the Annual Technical Meeting of the Indian Institute of Metals held in November 1987 at Trivendrum.

Participated at the Workshop on High Superconductors held at IISC, Bangalore in March 1988.

Participated in the National Seminar on "Select Correct Steel" organised by Institution of Engineers (India) held in Calcutta in December 1987.

(c) **Dr. T. K. Pal** participated and presented paper in the 3rd National Convention of Production Engineers and All India Seminar on Industrial Engineering Techniques in Production Management held at Jabalpur from 17–19 October, 1987.

Attended a Summer School on "Metallurgy of Cast Alloys for Foundry Technologists" held at IIT, Kharagpur, from 15–28 June, 1987.

Participated in the National Seminar on "Select Correct Steel" held in Calcutta in December '87.

Pharmacy :

(a) **Prof. S. P. Pal** participated an International Workshop on Health Hazards of Environment at Siena, Italy in September 1987.

(b) **Dr. T. K. Pal** participated in the 6th Pharmaceutical Technology Conference at Canteberry, U.K.

(c) **Prof. M. Gupta, Dr. S. K. Basu, Dr. U. K. Mazumder** and **Dr. J. K. Gupta** participated in a National Seminar on Analytical Chemistry held in Calcutta in January 1988.

U.S.I.C. :

Dr. A. Ghosal delivered invited lectures on "Production of Low Temperature" and "Measurement of Low Temperature" at the Operators' Training Course for Liquid Nitrogen Plants organised by the Advanced Centre of Cryogenic Research, Jadavpur University in June–July 1987.

FACULTY OF SCIENCE

Chemistry :

(a) **Dr. S. Chatterjee** attended "Symposium on Correlation Analysis in Chemistry at IACS, Jadavpur, Calcutta-32, on February 15 and 16, 1988.

(b) **Dr. S. N. Ghosh** presented a paper entitled "Studies on Enamides : Synthesis of Alalamide in National Symposium on Recent Advances in Organic Chemistry, 1987, Kalyani University.

Participated in NASOC, 1987, Deptt. of Chemistry, Calcutta University.

(c) **Dr. D. Chakraborty** was an invited lecturer in Fifty ISAS Symposium, Hyderabad.

Was invited as a resource person in Environmental Monitering System, Dhaka, Bangladesh.

(d) **Dr. S. Datta** participated in the Third National Symposium on Recent Advances in Organic Chemistry, January, 29–30, 1987, Kalyani University.

(e) **Prof. A. Chatterjee** attended National Symposium on Recent Advances in Organic Chemistry, held in March, 1988 at Kalyani University; delivered a plenary lecture.

(f) **Dr. S. P. Moulik** showed his remarkable personality as an invited speaker at Chemistry and Tech. of Surface Active Compounds Workshop, held at the Deptt. of Chemical Technology, Calcutta University, Nov., 25–28, 1987.

Was an invited speaker in the Third National Conference on Surfactants, Emulsions and Bio-colloids held at Aligarh Muslim University, December 28–30, 1987.

(g) **Dr. K. Das** attended a Symposium on Correlation Analysis in Chemistry, held at IACS, Feb., 1988.

(h) **Dr. S. C. Bera** attended Mutek Seminar—Mersching, W. Germany, Nov., 1987.

Delivered 'Invited Talk' at the 24th Annual Convention of Chemists held at Kohlapur, Shivaji University, Nov., 1987.

(i) A paper, entitled "Ion-Ion Solvent Interaction in Aqueous Ionic Cosolvent System" by S. Rudra, N. Talukdar and K. K. Kundu was accepted for Oral Presentation in the 8th ISSSA Rehensburg, 1987, held at Regensburg, FRG, August 10–15, 1987.

(j) **Prof. K. K. Kundu** was an invited lecturer on Elcctrocatalytic Studies on the Anodic Oxidation Alkaline Methanol and some Cheaper Metallized Electrode Substrates at the 1st National Conference on Electrocatalysis held at CECRI, Kandi Kudi, Tamil Nadu, January 10–12, 1988.

Was invited to deliver a plenary lecture in the Tenth and Eleventh Annual Conference of Bangladesh Chemical Society at Dhaka, March, 1988.

Was an invited Expert consultant in the B.O.S. Committee for Syllabus for Physical Chemistry at Dibrugarh University, Dibrugarh, Assam.

(k) A paper entitled "Kinetic Solvent Effects on Acid Catalysed Hydrolysis of Sucrose and basic Hydrolysis of Crystal Viloet on Some Aquoorganic Solvents by U. Mondal, K. Das and K. K. Kundu was presented in the Hamnett Memorial Symposium on Co-relation Analysis in Chemistry at IACS, Calcutta, February 1988.

(l) **Dr. B. B. Bhowmick**, invited to talk in the 5th National Conference of Indian Photo Society, 1987, at Lucknow, Oct., 1987, was Chairman on one of the sessions.

Attended the Symposium 'The Frontiers of To-morrow in Biology' at CCMB, Hyderabad, November 1987.

Presented paper on Correlation Analysis in Chemistry (Hammett Memorial Symposium) IACS, Calcutta, February 15–16, 1988.

Attended 'Indian Council of Chemists Conference' Jiwaji University : Gwalior, December, 28–30, 1987.

Was UNESCO Resource Person for the Workshop on 'Field Oriented Analytical Chemistry' University of Colombo, Sri Lanka, November 1987.

Geological Science :

(a) **Prof. S. K. Ghosh** visited U.S.A. under Indo-U.S. Exchange Programme.

(b) **Prof. A. D. Mukherjee** visited Austria as a Visi ing Fellow to the Institute of Mineralogy and Petrology, Leoben Mining University.

(c) **Dr. S. Sen Gupta** attended International Symposium on Antarctic Earth Sciences at U.K.

(d) **Prof. S. Mitra** delivered an invited talk at National Symposium on Geophysical Instrumentation at Annamalai.

(e) **Dr. H. Banerjee and Dr. S. Das Gupta** participated in the Indo-Soviet Workshop on Mineralogy in Delhi.

(f) **Prof. S. C. Sarkar** presented a paper (jointly with M. Deb) in the International Conference at Arisha, Tanzania and chaired a session.

Presented a key note paper in the National Conference on Development of India's Fuel and Mineral Resources Geol. and Environ and Chaired a session.

(g) Organised Workshop on "Teaching of Earth Sciences in the Light of Information Explosion", held in Calcutta on 25th March, 1988.

(h) **Prof. S. Roy** delivered Annual Mukkoramjah Endowment Lecture of the Indian Geophysical Union, Hyderabad.

Was appointed member of U.G.C. Panel in Geosciences, 1987-88.

Was appointed Chairman, Research Advisory Council of NIO, Goa.

Was appointed member of the Standing Committee on Emeritus Scientists' Programme, CSIR, 1988–90.

(i) **Prof. A. Bhattacharya** was appointed member of the Editorial Board of the Journal "Carbonates & Evaporites".

Mathematics :

(a) **Prof. D. K. Sinha** participated on invitation in International Commission on Mathematics Institution (ICMI) Seminar on "Mathematics as a Service Subject" at Udine Italy in April, 1987.

Visited on invitation "European Centre for Medium Range Western Forecasting (ECMRWF)", University of Reading, U.K., in April 1987.

Visited "International Centre for Theoretical Physics" Trieste, Italy, as a visiting scientist in April 1987.

(b) **Prof. K. S. Chaudhuri** delivered an invited talk at ihe UNESCO sponsored Regional Training Programme on "Some Contemporary Areas of Applicable Mathematics", held at the Department of Applied Mathematics, Calcutta University, in January, 1987.

Delivered an invited talk at the International Symposium on Nonlinear Analysis and Application to Biomathematics", held at the Andhra University, Visakhapatnam, in August, 1987.

(c) **Prof. A. B. Roy** delivered an invited talk at the International Conference on "Nonlinear Analysis and its Application to Biomathematics", held at the Andhra University, Visakhapatnam in 1987.

(d) **Dr. Mrs. G. Dutta** attended the workshop on "Numerical Modelling, Weather Prediction and Software Development, held at the Andhra University, Vishakhapatnam, December 27, 1987 January 9, 1988.

Attended the 2nd International Conference on "Open Higher Education : Technical and Innovation", held at BANKOK, March 24–29, 1987.

(e) **Prof. A. Chakraborty** attended 3rd Annual Conference on Mathematical Science at Varanasi.

(f) **Dr. R. P. Bandyopadhyay** attended and presented a paper in the Workshop on "Cloud Physics and Climate" held during November 21–December 18, 1987, at International Centre for Technical Physics, Trieste, Italy.

(g) **Dr. N. C. Ghosh** presented a paper at the International Symposium on "Yielding, Damage and Failure of Arisotropic Solids" held at Grenoble, France in August, 1987.

Attended the Summer School on "Optimization Control and Related Subjects" organised by International Centre for Pure and Applied Mathematics, Nice, France August 24–28, 1987.

(h) **Dr. (Mrs.) P. Mukherjee** attended the 26th International Seminar for Teachers of Russian Language and Literature in the Patrice Lumumba Friendship University in Moscow, USSR, from June 10 to July 15, 1987.

(i) **Sri A. K. Sarkar** attended the 6th Bangladesh Mathematics Conference, held at the University of Chittagonge, Bangladesh, Nov. 3–6, 1987 and presented a paper.

(j) **Dr. K. C. Bagchi** attended 75th Science Congress at the University of Pune.

(k) **Dr. N. C. Das** attended 75th Science Congress at the University of Pune.

(l) **Dr. S. K. Kundu** attended 75th Science Congress at the University of Pune.

(m) **Prof. B. R. Das** attended 75th Science Congress at the University of Pune.

Physics :

(a) A set of invited talk to be delivered by **Dr. A. Roy Chowdhury** at the International Workshop on Solitions and Spectral Transform to be held at Lake Como (Switzerland, Italy) July, 1988.

(b) **Dr. J. Nag** participated in the International School of Nuclear Physics Quark in Hardon and Nuclei during July 16–25, 1987, at Ehore Majorana Centre for Scientific Culture, Erice Sicily, Italy.

(c) **Dr. Asit Banerjee** acted as the Director of the 'Instructional Workshop' on the Advanced Aspects of General Relativity, held at Jadavpur University and I.A.C.S. during December 22, 1987, to January 2, 1988. The Workshop was mainly financed by U.G.C.

Attended the International Conference on "Gravitation and Cosmology", held at Goa during 19–24 December, 1987.

(d) **Dr. R. N. Joarder** presented a paper entitled "Thermodynamoves of Liquid Metals Based on CHS Model" at the 7th General Conference of the Condensed Matter Division of EPS, Pisa, Italy 7–11, April 1987.

Guest Scientist and participated in the "Workshop on Sufface Source", ICIP, Trieste, Italy, 5–9 May, 1987.

Participated and presented a Seminar talk on 'Structure and Thermodynamures of Liquid Metals' in the 'Spring College of Liquid Metals' in the Spril College on 'Material Science' ICTP, Trieste, Italy, 11 May–19 June, 1987.

(e) **Dr. R. C. Sastri** attended the International Workshop on Analytical Technique for Material Characterization held at Southern University, Baton Rouge, USA during May, 1987.

Visited the LASER OPTICS LABORATORIES, A & M University, Huntsville, Alabama, U.S.A., for about five weeks May–June, 1987 and delivered a talk on "Exocleetron emission from Graphite".

(f) **Dr. P. Nandy** presented the following papers in the VIth Ind. Photobiology Symp. October, 1987 at Lucknow :

Use of Fluorescence in the membrane studies : An invited talk.

Study of Transmembrane electron transfer by fluorescence quenching of chlorophylla and b incorporated in lipsome. M. Bhattacharjee, J. Choudhuri, B. Bhowmik, P. Nandy and K. K. Rohatgi-Mukherjee ;

Photovoltage Generation in due sensitized models biological membranes—C. S. Verma, P. Nandy, B. B. Bhowmick ;

Dye-Probed BIM—a model for Photon-driven proton pump – B. B. Bhowmik, R. Dutta and P. Nandy—to be presented at National Seminar on Photosynthesis, March, 1988, Sambalpur.

(g) **Dr. Kushalendu Goswami** attended National Symposium on Instrumentation held at Annamalai University, October, 1987.

Attended National Seminar on Physics and Applications of new materials held at I.A.C.S., Calcutta, March, 1988.

Attended National Workshop on high to superconductors, held at Indian Institute of Science, Bangalore, 27–31, March, 1988.

(h) **Dr. Sekhar Bhusan Dutta Chowdhury** participated and presented a paper at the International Conference on "Gravitation and Cosmology" held in Panaji, Goa, during 13 December, 1987, to 19 December, 1987.

Participated in the "Instructional Workshop on Advanced Aspects of General Relativity" held at Jadavpur University and I.A.C.S. from 22 December, 1987 to 2 January, 1988.

UGC SPECIAL ASSISTANCE PROGRAMME (SAP) :

Philosophy :

1. Title of the Program : *Centre of Advanced Study in Philosophy.*

Brief Report :

The Centre of Advanced Studies carried on intense research activity in the following areas :

(i) Logic and Philosophy of Language.

(ii) Philosophy of Natural and Social Sciences.

(iii) Indian Philosophy with special reference to Navya Nyaya Logic, Philosophy of Language and Mind.

(iv) Social/Value Philosophy.

Through the efforts of the Department there has been a great revival of scholarship in Classical Indian Philosophy and Contemporary Problems in Logic, Epistomology, Metaphysics and Ethics were sought to be solved through publication of books and journals.

2. Sanctioning Authority : UGC

3. Year of Sanction : 1. 4. 1985

4. Financial grant sanctioned : Recurring : Rs. 2,50,000/-, Non-recurring : Rs. 5,25.000/-

5. Name of Coordinator : Professor Tushar Kanti Sarkar

6. Name of the Faculty Members Associated : All the Teachers of the Department.

7. Nos of Research Fellows Associated : 4 Fellows were working.

Geological Sciences :

1. Title of the Program : Centre of Advanced Studies (CAS) in Economic Geology.

Brief Report :

The sanction of the Centre of Advanced Study in Economic Geology in 1985 was preceded by two phases of SAP (DSA). As a support to the DSA-Phase II, there was appreciable input from the UNESCO-UNDP funding through the UGC. In the present phase also the Dept. enjoys a concurrent support of Rs. 54 lakhs from the UGC under the COSIST Programme to strengthen further research and teaching in the Dept. Most of the funding has been spent or planned to be spent for improving the laboratory facilities and developing the infra-structure.

Although the thrust area of the CAS is Economic Geology, the programme is operated with a larger perspective. The existing facilties under the programme are available to all the teachers, research fellows and students of the Dept. Even this facility is extended to worker from other institutions and govt. agencies on request.

The results of activities under the programme have been highly appreciated. More than 250 research papers, monographs etc. have been published during the last 15 years based on the results of study on the projects under the programme. It is now considered an important Centre of research in Economic Geology and the allied branches of Geology such as structural Geology, Sedimentology etc. even in global scale.

2. Sanctioning Authority : U.G.C.

3. Year of Sanction : 1985

4. Financial grant sanctioned : Non-recurring Rs. 46.5 lakhs, Recurring Rs. 7.25 lakhs.

5. Name of Coordinator : Prof. S. C. Sarkar

6. Names of Faculty members associated : Most of the teachers in the Dept.

7. Nos. of Research Fellows associated : 8

Mathematics :

1. Title of the Program : Department of Special Asistance (DSA) Programme in applied Mathematics.

Brief Report :

The thrust area of the DSA Programme is applied Mathematics as identified by U.G.C. However, the expressed desire of U.G.C. is that the DSA Programme will lead to optimization of the available expertise in emerging areas related to continuum mechanics in which the Department has made a name in the country. It is also intended that adequate support should be extended to advanced research activities in Seismology on the applied side and in Advanced Topology and Functional Analysis on the pure side.

A national seminar held in March '87 was organised under the scheme entitled 'Some aspects of continuum mechanics with special reference to finite and boundary element methods. Lectures arranged under the scheme :

(1) Dr. H. C. Pant, Laser Division, BARC. On "An overview of inertial confinement fusion". in February 87.

(2) Prof. B. Jerman Blazie of Univerzia e Kardelja. Institut Jozef. Stefan, Yugoslavia on "Similarity index of a Chemical graph and its application in quantitative structure activity relationship" (QSAR Studies), Nov. '87.

2. Sanctioning Authority : University Grants Commission

3. Year of Sanction : 1983

4. Financial grant sanctioned : Non-recurring : Rs. 5,00,000/-
Recurring : Rs. 3,75,000/- per year for 5 years.

Note : The recurring assistance (besides the sum given above) includes 4 Research Associates, 16 Junior Research Fellows, 1 Technical Assistants, 1 Computer Programmer and 2 Typists.

5. Names of Coordinators : Prof. D. K. Sinha (Coordinator) and Prof. K. S. Chaudhuri (Joint Coordinator).

6. Names of Faculty members associated : All teachers of the Department of Mathematics.

7. Names of Research Fellows associated :

(a) Research Associates : Dr. Paritosh Kumar Dhar, Dr. Narayan Chandra Ghosh, Dr. Purabi Mukherjee, Dr. Snigdha Banerjee.

(b) Junior Research Fellows : Ashis Kumar Sarkar, Chitra Nayek, Sumita Saha Roy, Sukdeb Dutta, Madhumita Dasgupta, Sakuntala Ghosh, Susmita Ganguly, Bratati Banerjee, Bratati Dey, Krishana Kinkar Basu, Debasis Mukherji, Anita Chatterjee, Debkumar Mitra, Subhas Mukhopadhyay.

Note : Four National Scholarships are awarded every year for post-graduate studies in the department.

Physics :

1. Title of the Program : 'COSIST Programme'.

Brief Report :

On the basis of the information supplied by the Dept. of Physics, the University Grants Commission has recently agreed to provide assistance for a period of five years to the Department of

Physics for strengthening of the existing infrastructure for post-graduate teaching and research under COSIST (Committee on strengthening of Infrastructure in the Science and Technology) programme of the U.G.C.

'Condensed matter Physics' has been identified as the thrust area in which an assistance of Rs. 40 lakhs has already been committed and the following items will be purchased in the said thrust area subject to the final approval of the U.G.C. Committee.

Laser Raman Spectrophotometer, Vacuum Coating System, Electro Optical measurement system for liquid crystals, macro and biomolecules, ultrastable X-ray generator unit.

The Committee recommended the programme for strengthening the High energy Physics with the following financial allocation (non-recurring).

Semi-automatic scanning and measurement system for Nuclear track, Bubble Chamber Scanner and Tape Drive	Rs. 15 lakhs
Space for High Energy Physics Laboratory	Rs. 6 lakhs

The Department has also been requested to put up a concrete proposal for development of Post-Graduate Laboratory which may involve an amount around Rs. 10 lakhs.

2. Name of Coordinator : Prof. A. N. Basu

Chemistry :

A. 1. Title of the Program : COSIS

2. Sanctioning Authority : U.G.C.

3. Year of Sanction : 1987

4. Financial grant sanctioned :

Non-recurring :	Equipment	Rs. 42,50,000
	Reprographic	Rs. 1,50,000
	Building with renovation	Rs. 7,00,000
Recurring :	Books & Journals	Rs. 50,000 p.a.
	Maintenance/Service contract	Rs. 75,000 pa..
	Contingency	Rs. 50,000 p.a.

5. Name of Coordinator : Prof. R. V. Gopala Rao

6. Name of Faculty members associated : All teachers of the Chemistry Dept.

A standing committee consisting of the senior Faculty members has been formed for policy decisions. Apart from above, a purchase committee and a library committee have also been formed.

Quotations have been invited for the purchase of equipment, and no financial expenses have been incurred during the year 1987-88.

B. 1. Title of the Program : Departmental Special Assistance Programme (DSA) in Chemistry.

Brief Report :

During the first four years the grant for the purchase of equipments was fully utilised. The acquired instruments include CHN Analyser, Shimadzo Spectrophotometer, Nanosecond Fluorimeter, PAR Electrochem, Lyophiliser, Keithley Electrometer, Rotoevaporator, Computer, Xeroxing machine, etc.

In three phases Research Associates (3) and Research Fellows (12) were appointed.

Research works have been carried out in the five major and three minor thrust areas, viz. (1) Photochemistry including synthesis and mechanistic studies in the energy related research, (2) Synthetic Inorganic Chemistry, Organometallics, metalloporphyrins, metal cluster with

special reference to their uses, (3) Theoretical Chemistry with special reference to liquids and solutions, (4) Solution Chemistry and Electrochemistry, (5) Trace elemental analyses including pollution analyses, (6) Synthetic Organic Chemistry, (7) Surface Chemistry and (8) Kinetics.

During the period 1987-88, 123 original research papers have been published in national and international journals against a total of 350 for the period 1983-88. Conferences and seminars were attended and books and reports published.

Techniques developed during the programme period include those for monitoring carbon monoxide and sulphur dioxide, and these are being perfected. New analytical techniques for trace and ultra-trace amounts of manganese, cobalt, antimony, rhenium, etc. are being worked out.

Multidisciplinary activities in the fields of nonconventional sources of energy, waste water recovery, determination of heavy metals in fish bheries, effluent treatment and geochemical studies of the Hughli river estuary in collaboration with other departments and institutions have been undertaken.

Advanced researches in theoretical chemistry are in progress.

After the approval of the building plan by the UGC, the preliminary work for the construction of the laboratory space has been taken up by the University.

2. Sanctioning Authority : UGC

3. Year of Sanction : November, 1983

4. Financial grant sanctioned :

Non-recurring :	Rs.	36,00,000/-
Recurring :	Rs.	1,80,000/- p.a. for 5 years

5. Name of Coordinator : Dr. A. K. Chakraborty

6. Names of Faculty members associated : All teachers of the Department of Chemistry.

Electrical Engineering :

A. 1. Title of the Program : COSIST Programme

Cosist program has been sanctioned for Electrical Engineering Department for strengthening P. G. teaching and research and funds have been provided for the purchase of sophisticated equipments and books and journals. A number of PC–AT's have already been procured and they are now being connected into a common network. In addition, orders have been placed for purchase of many sophisticated equipment.

2. Sanctioning Authority : UGC

3. Year of Sanction : 1987

4. Financial grant sanctioned :

Non-recurring :	Rs.	44,85,000/-
Recurring :	Rs.	1,15,000/- per year

5. Name of Coordinator : Prof. P. K. Mukherjee

6. Name of Faculty members Associated : All teachers of Electrical Engg. Dept.

B. 1. Title of the Program : Departmental Special Assistance (DSA) Programme

Brief Report :

The program has progressed successfully. All the sections of the Department have been involved in this scheme. The progress reports are being placed before a committee where the representatives from the U.G.C. are also present, every year.

2. Sanctioning Authority : U.G.C.

3. Year of Sanction : 1983

4. Financial grant sanctioned : Non-recurring Rs. 2,70,000/-
Recurring Rs. 65,000/-

5. Name of the Coordinator : Prof. A. K. Roy

6. Names of the Faculty members associated : Dr. T. K. Ghoshal and all the Professors of the Department.

7. Names of the Research Fellows associated : Shyamal Majumder, Debjani Ganguly, Sanjay Mitra, Anindita Dutta.

Production Engineering :

A. Title of the Program : *COSIST*

Brief Report :

The Standing Committee for Strengthening Infrastructures of Science & Technology, a multi-agency body, organised by the University Grants Commission identified this Department for award of a grant of about Rs. 57.00 lakhs, to augment its facilities for post-graduate teaching and research in the areas of Automation and Manufacturing System.

The main thrust planned by the Department under this programme is built up advanced level research and training facilities in the area of "Robot Vision" and "Flexible Manufacturing System" (FMS) ultimately to be integrated as an Integrated Flexible Manufacturing Systems (IFMS), the first kind of such facilities in India.

The Department has initiated a post-graduate programme with special provision for industry-sponsored candidates and the planned augmentation will make the support facilities available of an advanced level.

2. Sanctioning Authority : U.G.C.

3. Year of Sanction : 1986

4. Financial grant sanctioned : Non-recurring Rs. 46.80 lacs, Recurring Rs. 2.00 lacs.

5. Name of the Coordinator : Prof. Dr. A. Bhattacharyya

6. Names of the Faculty members associated : Prof. Dr. A. Bhattacharyya, Prof. Dr. B. K. Mullick, Dr. S. K. Sorkhel, Dr. B. N. Lahiri, Mr. K. K. Datta, Mr. S. Basu, Mr. S. Debnath, Prof. Dr. S. K. Basu, Prof. Dr. S. R. Deb, Dr. J. Saha, Dr. S. K. Mukherjee, Mr. S. K. Sanyal, Mr. B. Sarkar, Mr. R. Bhattacharyya.

7. Names of the Research Fellows associated : Mr. T. Pachal, Mr. P. K. Mahalnabis, Mr. B. Bhattacharyya.

B. 1. Title of the Program : Departmental Special Assistance Programme (DSA)

Brief Report :

The Departmental Special Assistance Programme was awarded to this Department as a recognition of the outstanding contribution made by the faculty members during the past two and half decades in the area of Production Engineering. This was the first Department in Engineering Faculty to have this project. The funds made available under the programme were utilised to develop the following laboratories almost all of which are the very first of their nature in our country.

(i) Manufacturing Systems Laboratory, (ii) Automation Laboratory, (iii) Robotics Laboratory, (iv) Ergonomics & Workdesign Laboratory, (v) Decision Support System Laboratory.

The Department initiated many new courses based on entirely new philosophies particularly in the area of Graphics and Technical Arts.

Some of the major equipment procured through this project include *Bridgeport R2E4 CNC* Milling Machine with CAM module, EEN 320 CNC Lathe, HCL WORK-HORSE-III system.

The Department has also organised several seminars in the area of "Rural Technovation", "Productivity Maximisation", "Robotics", "Quantitative Techniques in Library Management" under this programme.

2. Sanctioning Authority : U.G.C.

3. Year of Sanction : 1984

4. Financial grant sanctioned : Non-recurring Rs. 28.95 lacs Recurring Rs. 5.60 lacs
Building Rs. 3.00 lacs Staff Rs. 9.00 lacs

5. Name of the Coordinator : Prof. Dr. . Bhattacharyya

6. Names of the Faculty members associated : Prof. Dr. A. Bhattacharyya, Prof. Dr. B. K. Mullick, Dr. S. K. Sorkhel, Dr. B. N. Lahiri, Prof. Dr. S. K. Basu, Prof. Dr. S. R. Deb, Dr. J. Saha, Dr. S. K. Mukherjee, Mr. K. K. Datta, Mr. B. Sarkar, Mr. S. K. Sanyal, Mr. S. Basu, Mr. S. Debnath, Mr. R. Bhattacharyya.

7. Names of the Research Associates associated : Mr. T. Pachal, Mr. P. K. Mahalnabis, Mr. A. Dutta, Mr. B. Bhattacharyya.

School of Energy Studies

Director : Prof. Sujoy Basu, Deptt. of Electrical Engineering

Jt. Director : Dr. M. K. Mukherjee, Deptt. of Electronics & Tele-Communication Engineering

Advisor : Prof. S. Deb

Report on Activities of the School of Energy Studies :

The School of Energy Studies, Jadavpur University, is now in its fifth year. What started as a modest endeavour towards creation of awareness about energy and problems allied to the particular field has now been transformed to an important organisation coordinating instructional and R & D activities in the field of energy. In addition to the instructional schedules that the School regularly organises, equal initiative is directed towards energy related activities in other sectors, such as joint and collaborative efforts, industrial utilisation of the design developments suggested by the School etc. Surveys and similar programmes are also included in the ongoing activities of the School. The following is a brief report of some of the important current activities of the School :

The School, at the request of the DNES, is taking up an Energy Related Survey in the districts of Murshidabad and Midnapore of this state for setting up URJA GRAMS in these districts. The setting up of Urja Grams is one of the major programmes of DNES at present.

The School has secured a grant of Rs. 1.5 lakhs from the South 24 Parganas District Development Board, Government of West Bengal, for the establishment of a field station at Kaikhali in the South 24 Parganas. Preparations as regards the establishment of the Station is in an advanced stage, and the same is expected to take concrete shape soon.

The School of Energy Studies has been identified by the University Grants Commission as the organisation for initiation of collaborative programmes with similar institutes in the U.S.A. for exchange and developmental activities in energy instruction, R & D etc. under the USAID programme.

The School has entered into dialogue with the Hindusthan Cables, a Government of India undertaking, for initiating manufacturing of wind electricity generation systems through transfer of technical know-how under the PACER programme. This effort, if successful, shall be one of the major achievements of the School.

The School is the only Manpower Training Centre in Energy in the eastern India. In an attempt to improve upon this role of the School, proposals for academic interactions with the Technical University of Denmark, a premier institute, and also with Georgia Tech. University has been forwarded for the consideration of the related Central Government Agencies. The School pins its hopes on successful outcome of the proposal.

The role of the School of Energy Studies in the development and training of manpower in energy has been highly acclaimed by the Solar Energy Society of India in its Annual General Meeting. The School has been approached for holding the National Solar Energy Convention in 1990.

Report on the National Workshop on Wind Energy :

National Workshop on Wind Energy was held under the auspices of the School of Energy Studies during 25–29 October, 1988, at the Department of Electrical Engineering. The Workshop was sponsored by the Solar Energy Society of India, and co-sponsored by the DVC, the WBSEB, the CESC Ltd., Hindusthan Cables and the Department of Science & Technology, Government of West Bengal.

The need for further dissemination of technical expertise regarding Wind Energy Utilisation Technology was felt during the conduction of a one-day workshop that was organised last year. The National Workshop on Wind Energy was organised with a view to bringing together people from various sectors and disciplines related to wind energy utilisation technology so that a purposeful techno-academic interaction could take place. The Workshop was, therefore, designed in the manner of a structured course on the topic and the aim was to cover the entire gamut that wind energy utilisation technology is composed of. And in the course of intensive exposure during the five active days

of the Workshop. the participants were introduced to and led into the details of such aspects of the technology as Wind Data Collection & Processing ; Basic & Advanced Aerodynamics ; Wind Electricity Generating Systems ; Complexities of Stand Alone & Grid Inter-connected Operational Modes ; Philosophy, Criterion, Novel Concepts of Energy Storage ; Economics & Aesthetic Aspects, etc. The theoretical exposures were supplemented by laboratory and computational exercises.

The participants of the Workshop ranged from interested individuals to enginerrs and technical personnel enaged in utilities, service industries, government organisations and also from voluntary bodies tendering services to the society. The representation from the diverse strata in fact added to efficacy of entire effort. The theoretical and practical schedules were competently undertaken by technologists and experts engaged in activities related to energy utilisation.

An exhibition on Wind Energy was also held in this connexion. The exhibition was organised to bring to the fore the developments in this particular field, namely, Wind Energy Utilisation, through a display of product literature, folders, technical bulletines, journals etc. The exhibition was perhaps the most comprehensive of its kind organised in these parts of the country and, in addition, it succeeded to justify the claims of wind energy as the most potential candidate among other nonconventional sources.

The last day of the Workshop witnessed an animated Panel Discussion among the representatives of utilities, user industries, academic institutions and government agencies promoting nonconventional energy utilisation. Various social, technical, economic and ethical questions were posed and discussed. These deliberations finally summed up into a set of important and useful recommendations, which emerged as the recommendations of the Workshop.

Report on the Two-day Workshop on "Photovoltaic Energy Conversion :

A Two-day Workshop on "Photovolataic Energy Conversion" was held on 12–13 December 1988 at Jadavpur University under the auspices of the School of Energy Studies. This was yet another effort on the part of the School in the promotion and dessemination of technical expertise in the field of alternative energy utilisation technology and was a component of the manpower training schedules in energy that the School had planned to organise at frequent intervals.

In contrast to the previous efforts of this kind undertaken by the School, which were concentrated mainly on the training of manpower in the grassroot/intermediate levels, this Workshop was held mainly for the exchange of ideas between research groups engaged in the development of solar cells on a cost competitive basis. The Research Group based at the University of Stuttgart, E.R.C., with which the Solar Energy Group of the School interacts regularly, was invited to participate in the Workshop. Other Research Groups, namely from the Indian Association for the Cultivation of Science, Calcutta University, I.I.T., Kharagpur, Kalyani University also took part in this exchange schedule.

The Workshop witnessed a lively interaction among the research scientists of the various institutes, Dr. Ing. F. Pfisterer, who heads the research group at the Stuttgart University, outlined the developmental activities being carried out in his institute. Similar expositions were presented by the group leaders of the research groups that participated.

Participants of the Workshop, who mainly belonged to the research community, benefited from the proceedings of the Workshop and gained much insight into the trend of developmental activities being undertaken in the more industrialised nations. All those who were present stressed on the need for further across-the-table exercises of this nature at more frequent intervals.

School of Women s Studies :

Director : Dr. Jasodhara Bagchi, Deptt. of English

Jt. Director : Shri A. K. Bhattacharyya, Offg. Director
Adult, Continuing Edn. & Extension Centre

The School of Women's Studies newly formed at Jadavpur University is committed to a positive and just evaluation of women's contribution to society and a practical realization of better conditions for women's lives in our society. Gender is identified along with class and caste as major areas of exploitation in Indian society and the need to analyse the massive ideological superstructure that facilitates such exploitation in is seen as an urgent need of the day. The implications of the ideology of Womanhood in our society have to be sifted and confronted with the help of the critical apparatus that we have at our disposal in areas of Culture, the Social Sciences, the Information Sciences as well as in the social use of Science and Technology. The School will promote critical work on all

these areas. It will also use examples from other countries and use methods and theories developed in other societies selectively for better understanding of our situation.

The School is awaiting recognition by the U.G.C. as a Centre for developing Women's Studies. At a meeting convened by the Vice-Chancellor to form the Academic Body of the School of Women's Studies the names of Professor Jasodhara Bagchi, and Sri Asoke Kumar Bhattacharya, the Director of Adult and Continuing Education, were proposed as Director and Co-director respectively. The activities that are going to be taken up by the School will be along the following lines :

(i) Lectures and courses to be given by distinguished visiting scholars and young researchers who have already done some work in the field. The first lecture organized by the School generated considerable enthusiasm among the audience. The lecture given by Dr. Susie Susie Tharu of C.I.E.F.L. Hyderabad, Visiting Fellow in the Department of English, was on 'A Feminist Critique of Women's Writing in India : 1850–1950' The second lecture on 'Women's autobiography in Bengal' was given by Sm. Srabashi Ghosh. A foundation course on Feminism was given in a lecture series by Dr. Himani Banerji of Atkinson College, Toronto University Canda, currently a Visiting Fellow of the ICSSR. A National Seminar early in 1989 is also in the pipeline.

An informal discussion was held with Ms. Margaret Elliston of the Institute of Public Policy, University of New Mexico on changing the Family Policy in U.S.A.

(ii) **Extension activities :** Women's Studies should not be kept confined within the walls of the University. With the help of the Adult and Continuing Education programmes the School hopes to initiate training programmes for the rural women and for women living in the slums nearby. A Newsletter to help such extension work looms large in our future plans.

(iii) **A library and documentation centre** of books and other materials relating to women is central to future plans for developing the School. U.G.C. has released a Ford Foundation book grant on Women's Studies and we have already acquired a unique collection of books on Women's Studies, on which we hope to build in the future. With warm co-operation from the Chief Library staff of the University, the School is trying hard to start a documentation centre where researchers and activists may find materials for monitoring the field. The department of Library Science has also shown considerable interest in the area.

(iv) **Research in Women s Studies :** The School hopes to co-ordinate research done in various departments and to initiate further research along inter-disciplinary lines, so that a meaningful Research Centre could develop in the near future. Occasional Papers, either printed or mimeographed, are being planned for a more effective circulation of ideas among scholars and activists in the field.

With the active co-operation of students, teachers and other members of the University, the School hopes to generate a new dynamism which will go some way towards conscientising the society we live in.

School of Biosciences & Engineering :

Director : Dr. Subrata Pal, Prof. of Bioengineering

Jt. Director : Dr. A. B. Roy, Deptt. of Mathematics

The School has taken initiative to identify the potential areas of research in this emerging interdisciplinary area. Departments of Mechanical Engineering, Metallurgy, Chemical Engineering, Electronics, Instrumentation, Electrical Engineering, Pharmacy, Physics, Chemistry and Mathematics are involved in research in these multidisciplinary areas. We already had an orientation-cum-awareness seminar of the interested faculties. The school has already prepared an activity profile which will be published soon. The school is currently working in the area of Biomaterials, Biomechanics, Modelling, Biomembrane, Medical Instrumentation, Drug release and some other related fields to name a few. We are also in the process of developing the areas Cryosurgery and Cryobiology, a multicentre project on Implant for total human joints replacement and modern technology for the rehabilitation of the handicapped.

The area of Biomedical Engineering has been developed and introduction of a post graduate course is under active consideration of the Ministry of Human Resource Development. Meanwhile the school is also involved in developing a postgraduate diploma (1 year) course with the facilities already developed with the fund from U.G.C. and other sponsored projects.

Given below are the lists of papers presented, published or sent to different meetings by teachers and scholars. The list of publications, etc. of other teachers involved will appear under their respective departmental news to avoid duplication.

The School has organised a 3-day short course on 'Bio-mechanics for Medicos' in collaboration with Mechanical Engineering Deptt. and West Bengal Orthopaedic Association in December, 1987. A certificate was given to each of the participants.

A pulsed electromagnetic field generator is under clinical trial in NRS medical college. Eastern Railway Orthopaedic Hospital and ESI, Budge Budge. It was found to be effective for challanging orthopaedic afflictions e.g., congenital pseudo-arthrosis. A myoelectric biofeedback device is aslo under clinical trial and a Nerve conduction velocity meter has been completed and ready for clinical trial.

Dr. Anup Majumdar and Dr. S. Pal delivered invited talks in a Seminar on Biomechanics of the National Institute for Orthopaedically Handicapped on 26th September, 1988.

Dr. Pal has also been invited to chair a session of the National Conference on Biomechanics to be held in IIT Delhi in December, 1988.

List of Papers presented/published/accepted from the Bio-Engg. Laboratory of School of Bio-Science & Engineering :

Papers presented in the 1st National Conference on Bio-materials and Artificial Organs held in IIT Delhi, June, '88 (1, 2 & 3).

1. Pal, S. and Bhadra, N.—Biocompatibility of Indigenous Titanium and Design of Implants.
2. Pal, S.—Fracture Toughness of Normal and Carbon Fibre Reinforced PMMA.
3. Pal, A.—Biomedical Effects of Pulsed Electromagnetic Field on Animal Organs.
4. Dutta, S., Ghosh, D., Bhadra, N., and Pal, S.—Mechanics of Thread cutting into Bone 7th Southern Biomedical Engg., Conference, Clemson University, Clemson, USA, 1988.
5. Tibarewala, D.N., and Pal, S.—Myoelectric Device for Rehabilitation Clinics, accepted in 12th All India Convention of Biomedical Engg. Society of India, December, 1988.
6. Majumder, A.K., and Bhattacharya, S.P., Analysis and Classification of Biostochastic Signal in Amplitude Domin, Proc. of 10th Annual Conference of IEEE/EMBS, November, 1988, New Orleans, USA.
7. Majumder, A.K., and Kumar, S.—A. Characterisation of Blood by Ultrasonic Imaging Technique. Proc. of Symposium of Acoustics, October 1988, Bangalore.

School of Water Resource Engineering :

Director : Dr. Balaram Bose, Prof. of Water Resource Engineering

Jt. Director : Prof. R. K. Dasgupta, Deptt. of Civil Engineering

School of Water Resource Engineering, Department of Mechanical Engineering :

The School recently conducted a 3-week course on Computerised Water Resources Management, 20 June to 9 July, 1988. The Course was sponsored by the Technology Mission on Drinking Water, Department of Rural Development, Government of India. There were 20 senior level Engineers/Scientists from different States in the East and North-Eastern region.

The School also collaborated to organise the All India Seminar Strategy for development of Water Resources, 11–12 August, 1988 along with the West Bengal State Centre, Institution of Engineers (India).

At present four full-time Research Scholars and two part-time Scholars have been working in the broad field of water resources. Apart from the Director of the School, eight faculty members from different Departments of the University have been taking active participation on the activities of the School.

Visitors to the School :

Dr. Dipak Mukherjee, Sr. Engineer, Michael Baker Inc. 1420 King Street, Alexandria, Vigirja, USA had worked at the School from 26/11/87 to 7/3/88 as a Visiting Fellow of the UGC.

Dr. Anthony Bottrall, Programme Officer, Ford Foundation, 55, Lodi Estate, New Delhi—110 003 visited the School on 21/9/88.

Prof. Dr. T. Prasad, Director, Centre of Water Studies Programme, Bihar Engineering College, Patna visited the School on 9/9/88.

Interaction with External Bodies/Agencies :

The School has recently established contacts with the North Eastern Council, Shillong, Notified Area Authority, Belonia, Tripura, Tripura State Council for Science and Technology, Tripura and the D.V.C. Maithon to undertake R and D works in the multidisciplinary area of Water Resources Engineering.

School of Education Technology :

Director : Prof. P. Som, Dean, Faculty Council of Engg. & Tech. &
Prof., Deptt. of Civil Engg.

Jadavpur University, out of its own resources, has taken up a "Computer Aided Instruction (CAI)" project in December, 1986. The objective of the project was to develop courseware for undergraduate/post graduate students of Engg., Science and Arts faculties. Currently the University has set up a "School of Education Technology" with all assets of the CAI project and has merged the activities of the CAI project.

The CAI Laboratory has been situated at the Control System Laboratory, Electrical Engineering Department.

The following coursewares have been developed so far for the U.G. students of Engineering and Science.

System theory (developed by Prof. S. Goswami, Dr. K. Datta and Prof. T. K. Ghoshal of Electrical Engineering Department).

Basic Geology (Developed by Dr. Arabinda Ghosh, Deptt. of Geological Sciences, Prof. T. K. Ghoshal, Dr. K. Datta and Sri G. Das of Electrical Engineering Department).

The work on "Basic Geology" has been presented by Dr. Arabinda Ghosh in the Workshop on "Teaching of Earth Sciences in the light of Information Explosion" organised by Geological, Mining and Metallurgical Society of India in March, 1988. Dr. C. D. Povey and Dr. Buist of University of Surrey, United Kingdom visited the School in August 1988 and delivered a series of lectures in the area of Computer Aided Learning. The visit was sponsored by the British Council. Recently Dr. Povey has expressed their desire to collaborate with Jadavpur University on aspects of Computer Aided Learning.

School of International Relations & Strategic Studies :

Director : Dr. Jayantanuja Bandyopadhyaya
Dean, Faculty Council of Arts &
Professor, Deptt. of International Relations

The School of International Relations and Strategic Studies held a three-day National Seminar on "Dimensions of Strategy in Indian Perspective" on 1st December 1988. It was an interdisciplinary seminar and the sessions were divided as follows : 1st Session, Game theoretic Engineering Models of Strategy with Professor A. K. Nath, Dr. Tapan Ghosal and Dr. Kalyan Datta and Dr. Sanat Mukherjee as speakers.

2nd Session : Game theoretic Political and Economic Models with Dr. Jayantanuja Bandyopadhyaya, Dr. Ambika Prasad Ghosh, Dr. Ajitabha Roy Choudhury as speakers

3rd Session : Energy as a Strategic Factor with Dr. Sujoy Basu, Dr. Arun Kumar Banerjee, Dr. R. K. Misra as speakers.

4th Session : Natural Resources and Strategy with Dr. Ananda Dev Mukherjee and Dr. Jayantanuja Bandyopadhyaya.

5th Session : India's Security Perception : Regional Environment with Dr. Aswini Roy, Dr. Baladas Ghoshal and Dr. Jyotirmoy Banerjee.

6th Session : India's Strategic Options with Dr. R. R. Subrahmanian and Professor A. N. Biswas.

SPONSORED PROJECTS

FACULTY OF ARTS

Economics :

A. Title of the Project : "North Bengal : Industrial Potentialities and Policies". Coordinator/ Principal Investigator : Dr. D. K. Halder, Professor & Head of the Dept.

Funding Authority : Industrial Development Bank of India.

B. Title of the Project : For writing a book on "Economics of Control" (Tentative). Coordinator : Prof. Anita Banerji, National Fellow, U.G.C.

Sponsoring Authority : University Grants Commission.

C. Title of the Project : "An Evaluation of W. Bengal Govt.'s Urban Housing Policy". Coordinator : Dr. Susmita Rakshit. Rs. 10,700/-.

Sponsoring Authority : University Grants Commission.

D. Title of the Project : "Migration and Regional differences in Population growth in Eastern India during 1921-81". Coordinator : Debesh Chakraborty. Rs. 52,500/-.

Sponsoring Authority : ICSSR.

English :

A. 1. Title of the Project : Research on Place Names and Compilation of a Dictionary on Place Names.

Brief Report :

As suggested by the U.G.C. the project aims at "making a comprehensive study of the names of all the villages and towns in the State of West Bengal" and "compiling a districtwise dictionary. The first volume of the proposed series of distionaries is being prepared on Place Names of the district of Howrah. The entry on each place-name will indicate/explain :

(a) Mouja ; Police Station ; Block ; Gram Panchayet ; nearest Railway Station/Bus Stop ;
(b) Any feature or fact worth noting and remembering in connection with that place ;
(c) Origin and significance of the name of the place. The volume is expected to be ready by September 1988.

2. Sponsoring Authority : The University Grants Commission.

3. Year of Sanction : 1987

4. Financial grant sanctioned : Non-recurring : Rs. 45,800/-.

5. Name of Project Coordinator : Rama Prasad De

6. Names of Faculty members associated : Dr. Jagannath Chakraborty, Dr. Jasodhara Bagchi.

7. Names of Research Fellows associated : Sudeshna Sarkar, Tultul Ganguly, Rupa Das Gupta.

B. 1. Title of the Project : The Evolution of forms of Performance in the Indian People's Theatre Movement (1943–1956)

Brief report :

This will be an analytical study of the ways in which the performing arts were experimented with and remodelled by IPTA workers in the 1940s and 1950s.

2. Sponsoring Authority : ICSSR Senior Research Fellowship.

3. Year of Sanction : 1987

4. Name of Project Coordinator : Malini Bhattacharya

Sanskrit :

1. Title of the Project : A Study of the Sanskrit Historical Kavyas in the light of Contemporary Inscriptions, Numismatics, Monuments and other literary records.

About the project :

A great number of historical incidents and accounts of historical personalities of ancient Indian have been preserved in Sanskrit poems. Twelve such poems have been selected for the said project. Ancient Indian poets, though great as scholars did not possess a true sense of history. In the present project the historical elements contained in their works are being compared with and judged from the evidences recorded in the contemporary inscriptions, coins etc. The scheme will certainly be helpful to the students of Ancient Indian history in acquainting them with the primary sources of the life and activities of some of the prominent historical personages of ancient India.

2. Sanctioning Authority : U.G.C.

3. Principal Investigator : Dr. Manabendu Banerjee

4. Research Fellowship : JRF–1

FACULTY OF SCIENCE

Chemistry :

A. 1. Title of the project : Studies on Cholesterol and Cholesterol derivative contained oil-in-water micro-emulsions.

2. Sanctioning authority : D.S.T.

3. Year of sanctioning : 1986

4. Financial grant : Rs. 2,71,000/- (3 years)

5. Investigators : Dr. S. P. Moulik, Dr. P. K. Bhattacharya

6. No. of fellowships : J.R.F. 2.

B. 1. Title of the project : A molecular acoustic and statistical and quantum mechanical study of liquids.

Brief report : Following works are going on :

(a) Investigations on partial and total structure factors of compounding forming alloys.

(b) Investigations on Coherent Scattering intensities in simple alloys.

(c) Light Scattering and Structural studies of emulsions and colloidal solutions.

(d) Thermodynamics studies of salts through a charged hard sphere model with a generalised Debye screening inverse length parameter.

(e) Study of fused salts and the evaluation of partial structure factors and correlated functions.

Very good results in agreement with experiments are already obtained and published.

2. Sanctioning authority : U.G.C.

3. Year of sanction : 1987

4. Financial grant : 1 Lakh

5. Name of the Coordinator : Prof. R. V. Gopala Rao

6. Research Fellows Associated : R. Venkatesh

C. 1. Title of the project : A comprehensive statistical mechanical study of the equilibrium and non-equilibrium properties of liquids and solutions.

Brief report :

Detailed work on fused salt systems, alloys, polymers and semiconductors are in progress. Determinations of partial structures of alloys, transport and thermodynamic properties of fused salts, applicability of liquid state equations to polymerised substances are being done as also structure and thermodynamic calculation of liquids, metals were taken up based on charged hard sphere model.

Important results have been obtained, some of which have already been communicated and have been accepted for publication in Phys. Rev. (1987).

2. Sponsoring authority : D.S.T.

3. Year of sanction : 1987

4. Financial grant sanctioned : 2.6 lakhs

5. Name of the Coordinator : Prof. R. V. Gopala Rao

6. Names of Research Fellows associated :
(i) Ratna Das, (ii) Aloke Sathpati, (iii) T. Das

D. 1. Title of the project : Synthesis and physico-chemical studies of boron compounds of potential medicinal utility.

Brief report :

Medicinal possibility of boron compounds particularly in cancer chemotherapy and chemoradiotherapy is now well recognized, but suitable compounds for either of the above are yet to emerge. Our aim has been and still now is to design, develop and consequently to synthesize and characterize boron compounds having the required criteria, particularly for chemotherapy. We have chosen four-coordinate boron-nitrogen, boron-phosphorus and boron-oxygen compounds, because of their hydrolytic stability. As a consequence, we have synthesized a number of boron nitrogen compounds which may be regarded as boron analogues of amino acids. Precursors of these and their various derivatives have already been synthesized. Analogues phosphorusboron compounds have also been prepared. Preliminary work on the formation of peptide bonds has been encouraging (Some work is already under publication).

2. Sanctioning authority : D.S.T.

3. Year of sanction : 1987

4. Financial grant sanctioned : Rs. 5,05,200/- in 3 years

5. Name of the Chief Investigator : Dr. M. K. Das

6. Research Fellowship : J.R.F.–1, S.R.F.–1.

E. 1. Title of the project : Chemistry, electro-chemistry and photo-electro-chemistry of Molybdenum, tungsten and uranium.

Brief report :

A novel route for the synthesis of hexatungstate. $Wo_6O_{19}^{2-}$ has been established & characterised by X-ray single crystal structure analysis. Similar works on Mo, V & U systems are going on.

2. Sponsoring authority : U.G.C.

3. Year of Sanction : 1987

4. Financial grant sanctioned : Recurring Rs. 1 lakh

5. Name of Project Coordinator : Prof. R. G. Bhattacharyya

6. Name of Research Fellow associated : Sudeb Biswas

F. 1. Title of the project : Synthesis, structure and reactivity of transition metal etc.

Brief report :

Some interesting Re-nitrosyls have been synthesised & characterised [J. Chem. Soc. Dalton Trans. (in press) and some works in the area of Vanadium and Molybdenum nitrosyls are under communication.

2. Sanctioning Authority : U.G.C.

3. Year of Sanction : 1986

4. Financial grant sanctioned : Non-Recurring : Rs. 20,000/-
Recurring : Rs. 1.8 lakhs

5. Name of Project Coordinator : Prof. R. G. Bhattacharyya

6. Names of Research Fellows associated : (1) Mrinal K. Mallick (2) Swapna Roy

G. 1. Title of the project : PHOTOGALVANIC STORAGE SYSTEM :
(a) Storage as electrical energy, (b) Storage as chemical energy

Brief report :

The project envisages development of photogalvanic electrochemical cells which can be utilised for storage of solar energy. Storage can be in two forms : (i) In the form of electrical energy as in a storage battery. Rechargeable solar storage battery is a concept which is very attractive if successfully developed. (ii) In the form of chemical energy of stable reduced compounds like H_2, Br_2, alcohol etc. which can be used as fuels at a later time in a fuel cell to generate electrical energy or burnt in air to generate heat energy.

A new type of electrochemical cell has been developed using deoxygenated solutions of a dye and EDTA in one compartment of a specially designed cell, with an aqueous solution of different redox couples separated by sintered pyrex glass membrane (porosity G-4). On exposure to light, while generation of photovoltage takes 10–20 minutes, decay of photovoltage takes 2–3 days. Attempts are being made to improve the performance.

For photosplitting of water, a number of photo redox couples are being synthesised. The complex ammonium tetrathiomolybdate and some metal clusters have shown some promise. Suitable arrangements for collection and estimation of hydrogen is under investigation. The overall solar energy efficiency is found to be very encouraging.

2. Sponsoring Authority :
Department of Non Conventional Sources of Energy (DNES), Government of India.

3. Year of Sanction : 1986

4. Financial grant sanctioned : Non-Recurring : Rs. 6.55 lakhs
Recurring : Rs. 2.350 lakhs (3 years)

5. Name of Project Coordinator : Prof. K. K. Rohatgi-Mukherjee

6. Names of Faculty Members associated : Prof. R. G. Bhattacharyya
Dr. B. B. Bhowmik

7. Names of Research Fellows associated :
S.R.F. Manorama Bhattacharya, J.R.F. Dhurjyati Mondal, Kalipada Dhara

H. 1. Title of the project : All India Coordinated Project on "Artificial models for efficient light gathering and utilisation of Solar energy".

Brief report :

In plant photosynthesis photochemical conversion and storage of solar energy is taking place in a most organised fashion. The mechanism developed by Nature is still not completely

understood. Investigations are going on all over the world for understanding the photosynthetic pathways and then to mimic the process. Therefore development of Artificial Models for Efficient Light Gathering and Utilization of Solar Energy has considerable relevance. The main problem lies in developing systems which has the properties of chloroplast membrane, and suitable photosensitizers and relay for photon induced electron transfer in the desired direction. In these models, spatial and temporal juxtaposition of components is important considerations.

Some initial studies are being carried out by incoporating plant chlorophylls in liposomes and studying the photon induced electron transfer phenomenon using suitable electron donors and acceptors by absorption and fluorescence spectroscopy.

To simulate natural system, porphyrins and metalloporphyrins are being synthesised which will be incorporated in suitable membranes or micelles for photosensitizing electron transfer step in one-photon and two-photon processes. The mechanistic details are being studied by measurement of transient species by flash photolysis technique and characterizing them by quenching of fluorescence and measurement of lifetimes by time-correlated single photon counting technique.

2. Sponsoring Authority :
Department of Non Conventional Sources of Energy (DNES), Government of India.

3. Year of Sanction : 1986

4. Financial grant sanctioned : Non-Recurring 13.00 lakhs, Recurring 2,115 lakhs (3 years)

5. Name of Project Coordinator : Prof. K. K. Rohatgi-Mukherjee

6. Names of Faculty members associated : Dr. A. B. Chatterjee,
Dr. S. C. Bera

7. Names of Research Fellows associated : J.R.F. Bidyut Kumar Manna
Jayanto Chaudhury

I. 1. Title of the project : "Triplets and radicals of aromatic ketones".

The future programme of the project is to investigate flash photolytic studies of some organic compounds at low temperature and expected to study transient triplets and radicals in the slow time scale. The other objective of the project is to study the photo conductivity produced by photo generated ions.

2. Sponsoring Authority : C.S.I.R.

3. Year of Sanction : 1987

4. Financial grant sanctioned : Rs. 26,400/- (Recurring)

5. Name of Project Coordinator : Dr. S. C. Bera

J. 1. Title of the project : Mechanism of Redox Reactions Involving Mn (III) Complexes

Brief Report :

Mechanism of Redox reactions of H_2O_2 with ethylene-bisbiguanidine manganese (III) cation and of $S_2O_3^{2-}$ with trisacetylacetonato manganese (III) are under investigation.

2. Sponsoring Authority : U.G.C.

3. Year of Sanction : 1986

4. Financial grant sanctioned (Recurring) : Rs. 15,000/-

5. Name of Project Coordinator : Dr. Rupendranath Banerjee

6. Names of Faculty members associated : Prof. A. K. Chakraburtty

7. Name of Research Fellow associated : Rina Das

K. 1. Title of the Project : Kinetics and Mechanism of Redox Reactions Involving Ag (II) and Ag (III) Complexes

Mechanism of the reaction of an Ag (III) complex with formic acid in acid perchlorate media as also the electro-chemical behaviour of the complex has been investigated. The role of Ag (I) in this reaction has been studied. It has been observed that the complex develops a film on the Pt. electrode through electroreduction of the ligand. One paper has been accepted for publication in J.C.S. (Dalton).

2. Sponsoring Authority : U.G.C.

3. Year of Sanction : 1986

4. Financial Grant Sanctioned : Non-Recurring Rs. 14,000/-
Recurring Rs. 1,16,000/-

5. Name of Project Coordinator : Dr. Rupendranath Banerjee

6. Names of Research Fellows Associated : Amitava Das and Subrata Dasgupta

L. 1. Title of the Project : Metal Sulphur Aggregates, Cages and Clusters.

Brief Report :

Some metal-sulphur clusters of Mo and W have been synthesised and structurally characterised. Their photo-electrochemical properties are being investigated. Already an invited talk in this regard has been delivered by the Principal Investigator in BARC in Nov. 1987.

2. Sanctioning Authority : D.S.T.

3. Year of Sanction : 1987

4. Financial grant sanctioned : Nearly 7 lakhs
Non-Recurring : nearly 5 lakhs, Recurring : 2 lakhs

5. Name of Project Coordinator : Prof. R. G. Bhattacharyya

6. Names of Research Fellows associated :(1) R. K. Mishra, (2) P. K. Chakraborty

Mathematics :

A. Title of the Projects : Energy transport in laser irradiated targets.

Brief Report :

In laser induced inertial confinement fusion program, inward thermal energy flux is anomolously limited in the overdense region due to self generated dc toroidal and poloidalmagnetic fields produced in the coronal plasma. In this project, theoretical investigations have been initiated on the generation of poloidal magnetic field in laser plasma interaction. Generation of axial magnetic field $\sim$0.35 mega gauss has been reported [B. Chakraborty, Manoranjan Khan and B. Bhattacharyya, J. Appl. Phys. 59, 1473 (1986)].

The scaling laws for the variation of such a field with different powers and wavelengths available from Nd-glass and Co_2 lasers are obtained. Lateral energy transport has been shown to be inhibited but axial energy transport is increased. In these investigations Dr. H. C. Pant of Laser Division, BARC (Bombay) is collaborating. The report of the work is to be published soon [Ref. B. Chakraborty, M. Khan, B. Bhattacharyya, S. Deb, H. C. Pant, Phys. Fluids (to be published in 1987).

Some experimental observations are in progress in the Laser Laboratory of BARC, in which investigators Dr. M. Khan and Dr. B. Bhattacharyya are participating with Dr. H. C. Pant and Mrs. T. Shirshat, for the detection of axial magnetic field by measuring depolarization of the backscattered radiation on targets (copper, myler, etc.) on a 60 μm. spot size using laser power $\sim$ 10–20 Joule, 5 ns pulse duration.

2. Sponsoring Authority : Department of Atomic Energy

3. Year of Sanction : 1984-85

4. Financial grant sanctioned : Non-Recurring : Nil
Recurring : Rs. 1,53,800/- (3 years)

5. Name of Project Coordinator : Professor Biswanath Chakraborty

6. Names of Faculty members associated : (1) Dr. Manoranjan Khan
(2) Dr. Biswanath Bhattacharyya

7. Name of Research Fellow associated : Susmita Sarkar

B. 1. Title of the Project : Economic Modelling of Biological Resources Exploitation

Brief Report :

The major objective of the project is to develop management models on the commercial exploitation of renewable resources like fisheries and forestries. The project envisages construction of mathematical models on the optimal control of growth and harvesting of forests and fisheries, taking economic and social factors into account as far as mathematically practicable.

2. Sanctioning Authority : The Third World Academy of Sciences, Vienna, Austria.

3. Year of sanction : 1987

4. Financial grant sanctioned : Non-recurring : US $ 5,000/- covering a period of 1 year.

5. Name of Project Coordinator : Prof. K. S. Chaudhuri

Physics :

A. 1. Title of the Project : Viscosity and heat flow in General Relativity and Relativistic Cosmology.

Brief Report :

The dissipative mechanism such as viscosity and heat flow in General Relativity not only modify the nature of singularity usually occurring in perfect fluid cosmology, but also successfully account for the large entropy per baryon in the present universe. In view of the above interesting possibilities investigations are now being made on the role of dissipation in different Cosmological models and gravitational collapse as well.

2. Sponsoring authority : C.S.I.R.

3. Year of Sanction : 1987

4. Financial grant sanctioned : Rs. 24,600/- per year (recurring)

5. Chief Investigator : Dr. Asit Banerjee

6. Name of the Research Fellow associated : Benoybhusan Bhowmik

B. 1. Name of the Project : Interactions and Properties of Elementary Particles.

Motivation of the Project :

A statistical model of hadron as a quarkonium system, developed earlier by Prof. S. N. Banerjee is being investigated in the current U.G.C. research project so as to establish the model as a convenient, simple and novel one in high energy physics. In this model, one assumes, say a meson to consist of a valence quark anti-quark pair in addition to the sea of virtual quark anti-quark pairs. Unlike the conventional approach, one comes across an analytical expression for the square modulus of the wavefunction of a hadron, which contains only one parameter, corresponding to the size parameter of the hadron. Without any reference to the context of Schrodinger or Dirac equation, the wavefunction so derived is being employed to investigate various hadronic properties so that reasonable agreement with experimental data would justify the statistical picture of a hadron as suggested in the model.

2. Sponsoring Authority : U.G.C.

3. Year of Sanction : 1986

4. Amount Sanctioned : Rs. 30,000/- (Recurring and Non-recurring)

5. Duration : 3 Years (normally)

6. Principal Investigator : Prof. S. N. Banerjee

7. Other personnel in the project : Ballari Chakraborti, Junior Research Fellow

C. 1. Title of the Project : Study of photovoltage generation in pigment/dye probed lipid aggregate structures.

Brief Report :

The object of this proposal is to study the photoinduced charge transfer causing generation of photovoltage in dye/pigment probed lipid aggregate structures.

2. Sponsoring Authority : D.A.E.

3. Year of Sanction : 1987

4. Financial grant sanctioned : Rs. 1.3 lakhs (approx.) for 3 years

5. Name of Research Fellow associated : Manorama Bhattacharya (SRF)

6. Chief Investigator : Dr. Papiya Nandy

Physics and Chemistry :

A. 1. Title of the Project : Electrical spectral and photochemical studies in bilayer lipid membrances.

Brief Report :

Using bilayer lipid membrane, the object of this proposal is to (a) study the nature of charge carrier through model biomembranes (b) to study the spectral properties of charge transfer complexes of biomolecules and (c) to study the photochemical properties of this system.

2. Sponsoring Authority : D.S.T.

3. Year of Sanction : 1986

4. Financial grant sanctioned : Rs. 6.2 lakhs (approx.) for 3 years

5. Investigators : Dr. Benoy B. Bhowmick (Chemistry), Dr. Papiya Nandy (Physics).

6. Names of Research Fellows associated : Ruma Datta (SRF), Chirasree Sen Varma (JRF)

FACULTY OF ENGINEERING & TECHNOLOGY

Civil Engineering :

A. 1. Title of the Project : Simulation, Static & Dynamic Analysis of Isogrid components of Rocket Structure.

Brief Report :

Isogrid is a form of ribbed shell with rib stiffeneners arranged to make an equilateral triangle. These components are used in boosters as well as heat shield part of the rocket structure. A static, dynamic and stability analysis for such structural form is being done by Finite Element Method with the help of curved triangular this shell elements and curved arch elements. A general computer program to analyse such isogrid components for any type of loading is being developed to provide software for analysis of such rocket components.

2. Sponsoring Authority : Dept. of Space

3. Year of Sanction : 1985

4. Financial grant sanctioned : Recurring : Rs. 1,09,000/-

5. Name of the Project Coordinator : Dr. Arup Kumar Mukherjee

6. Name of the Faculty member associated : Dr. B. N. Ghosh

7. Names of the Research Fellows associated : D. K. Chakraborty & G. Kundu

B. 1. Title of the Project : Dynamic Response of Balanced Cantilever Solid Slab Bridge Deck.

Brief Report :

The objective of the proposed research is to make theoretical and experimental study of the dynamic response of Balanced Cantilever Solid Slab Bridge Deck with different support conditions.

Computer Programme for isolating the effect of mass dependent inertia force in the dynamic response of the bridge due to moving load has already been developed for the case of a simple bridge. Computer based analysis for determining the natural frequencies of the framed bridge is in progress.

The Model Study will in its first part, try to measure the natural frequencies of the bridge model starting from its lowest one. In the second part of the model study a continuous time history of the structural response (both vertical and horizontal) of the framed bridge as well as the interacting vehicle force as it moves over the bridge at a constant velocity are proposed to be recorded simultaneously.

2. Sponsoring Authority : C.S.I.R.

3. Year of Sanction : 1985

4. Financial grant sanctioned : Non-Recurring : Rs. 1,52,500/-
Recurring : Rs. 40,000/- per annum

5. Name of Coordinator : Dr. Bratish Sengupta

6. Names of Faculty members associated : (i) Dr. Arup Kr. Mukherjee
(ii) Dr. Somnath Ghosh

C. 1. Title of the Project : Soil Structural Interaction Analysis for the Design of Underground Reinforced Concrete Service Tunnels.

Brief Report :

The current practice of design of underground service tunnels is empirical and in general found to be too conservative. In order to develop a rational method of design it is necessary to consider the soil structural interaction problem associated with it. It is likely that rigourous soil structural interaction analysis will result in a much more economical design.

Theoretical analysis using Finite element technique has been made to study the effect of different parameters such as soil properties, sequence of construction, size, shape and thickness of tunnel structure etc.

Test results with R.C.C. Tunnels are found to be very encouraging and matching well with the analytical results. Further tests with Steel Conduct are to be carried out.

2. Sanctioning Authority : C.S.I.R.

3. Year of Sanction : 1984

4. Financial grant sanctioned : Non-Recurring : Rs. 1,36,621/-
Recurring : Rs. 27,000/- per annum

5. Name of Coordinator : Dr. Bratish Sengupta

6. Names of Faculty members associated : (i) Dr. Subhas Ch. Das, (ii) Dr. Nitindra Nath Som, (iii) Sri Indrajit Roy

D. 1. Title of the Project : Piles in layered soil with loading conditions relevant to offshore structures.

Brief Report :

Piles used for nearshore and offshore structures frequently penetrate through stratified or layered soil deposit. These piles are subjected to various types of loading like axial, lateral and inclided. The loads may be static and cyclic due to wave equation. In this project, initially theoretical computer oriented analysis is being formulated for piles in layered soil under static lateral, and cyclic late!al load. After this, axial capacity of piles will be determined by suitable numerical method and then an overall analysis for piles in layered soil under axial load and cyclic lateral load will be done. Lastly, detailed experimentation of instrumented piles in layered soil under various loading and soil conditions will be carried out to check the validity of the theoretical analysis.

2. Sponsoring Authority : C.S.I.R.

3. Year of Sanction : 1986

4. Financial grant sanctioned : Rs. 1,03,400/-

5. Name of Investigator-in-Charge : Dr. R. D. Purkayastha

6. Names of Faculty members associated : Dr. S. C. Das and Dr. N. Som

7. Name of Research Fellow associated : R. B. Sahu

E. 1. Title of the Project : Analysis of Layered Composite Shell with large deformations.

Brief Report :

In the Analysis of Layered Composite Shells with large deformations Computer Programme has been developed for shell of arbitrary shape by Finite Element method. Material non-linearity and deflection non-linearity have been taken into consideration and checked with standard result.

2. Sanctioning Authority : Vikram Sarabhai Space Centre (ISRO) Trivandrum.

3. Year of Sanction : 1985

4. Financial grant sanctioned : Recurring : Rs. 1,88,000/-

5. Name of the Coordinator : Prof. P. Som

6. Names of the Faculty Members associated : Prof. B. N. Ghosh, Shri K. K. Ghosh

7. Names of the Research Fellows associated : Shri Debasis Basu

F. 1. Title of the Project : Satellite geodesy : experimental study of the feasibility of preparing topographical maps by Doppler shift method.

Brief Report :

Computer programme has been developed to determine the observer coordinates by Doppler shift method from the Satellite signals. Statistical correlations are now being tried to study the feasibility of preparing topographical map from these data. The scope of the research is further extended to utilise this principle for "Search and Rescue" operation of air craft or offshore buoy.

2. Sanctioning Authority : Space Application Centre (SAC)

3. Year of Sanction : 1985

4. Financial grant sanctioned : Recurring : Rs. 1,17,600/-

5. Name of the Coordinator : Prof. P. Som

6. Name of the Faculty member associated : Prof. B. N. Ghosh

G. 1. Title of the Project : Hydrodynamics and Response of Offshore Structures.

Brief Report :

Hydrodynamics & Response of Offshore Structures are being studied by determining various wave forces encountered by offshores structures and the methodology to determine such forces as well as the structural response to it.

2. Sanctioning Authority : CSIR

3. Year of Sanction : 1985

4. Financial grant sanctioned : Recurring : Rs. 2,29,200/-

5. Name of the Project Coordinator : Prof. P. Som

6. Names of the Faculty members associated : Prof. A. K. Mukherjee, Prof. B. N. Ghosh and Prof. D. K. Sinha

H. 1. Title of the Project : Structural Weight Optimisation of Launching Tower.

Brief Report :

Mobile Service Tower (MST) or in short the Launching Tower is required in launching ASLV or PSLV type rockets now being used by ISRO. Structural Weight Optimisation of this tower is necessary for reducing the motive power and increasing the manocuvrability. General Purpose Computer Programme are now being developed for space frame and space truss incorporating optimisation of weight for varies systems of structure.

2. Sanctioning Authority : SHAR Central Design office, ISRO

3. Year of Sanction : 1984

4. Financial grant sanctioned : Recurring : Rs. 2,81,000/-

5. Name of the Coordinator : Prof. P. Som

6. Names of the Faculty members associated : Prof. A. K. Mukherjee, Prof. B. N. Ghosh

7. Names of the Research Fellows associated : Sri Partha Addya, Sri Siddhartha Lahiri

Electrical Engineering :

A. 1. Title of the Project : Novel Methods of Measurement of Current & Voltage in EHT System.

Brief Report :

This project aims optical measurement of current & voltage in extra-high voltage system. The methods of measurement make use of a properly known as "Optical Activity" exhibited by certain materials. It has been observed that the optical activity of some selected materials depends upon the magnetic and electric fields to which the material is subjected to. The effect, Electrogyration effect can be suitably used to give a measurement of the magnetic & electric fields which in their turn are functionally related to the current & voltage of the system. Thus, measurement of the rotation of the plane of polarisation of a monochromatic beam of ray from a He-Ni Laser and transmitted through optical fiber to and from the selected transducers gives the estimate of current & voltage in the extra-high tension system.

2. Sanctioning Authority : Electronics Commission, D.O.E., Govt. of India.

3. Year of Sanction : 1982

4. Financial grant sanctioned : Rs. 12.44 Lakhs, Non-recurring Rs. 11.18 Lakhs / Recurring : Rs. 1.26 Lakhs.

5. Name of the Coordinator : Prof. Sanjoy Kr. Basu

6. Names of the Faculty Members associated : Prof. J. K. Choudhury, Prof. P. K. Mukherjee

7. Name of the Research Fellow : S. Ray Chaudhuri

B. 1. Title of the Project : ARDB

Brief Report :

The project has just been started and the first report is being prepared for distribution to the renowned experts of different Research & Development organisations of DRDO.

2. Sanctioning Authority : Defence Research & Development Organisation

3. Year of Sanction : 1987

4. Financial grant sanctioned : Non-recurring : Rs. 3,81,000/-

5. Name of Coordinator : Prof. A. K. Roy

6. Name of the Faculty member associated : Prof. K. Majumder, Mechanical Engg. Dept.

C. 1. Title of the Project : JUAIFS

Brief Report :

The project is progressing quite satisfactorily. A conference on this particular project was held in Jadavpur University in 1987 which included experts from the DRDO organisations as well as professors of different I.I.T.'s and the Indian Institute of Science, Bangalore.

2. Sanctioning Authority : Defence Research & Development Organisation

3. Year of Sanction : 1986-87

4. Financial grant sanctioned : Non-recurring : Rs. 99,700/-

5. Name of the Project Coordinator : Prof. A. K. Roy

6. Name of the Faculty member associated : Prof. K. Majumder, Mech. Engg. Dept.

7. Name of the Research Fellow associated : Debjani Bhattacharya

D. 1. Title of the Project : Project-Jupiter-Two

Brief Report :

The progress of Jupiter projects (one & two) has received attention of the Parliament. Jupiter II is nearing completion and is in its final stage. Conferences on this particular project are held quarterly either at Jadavpur University or in Hyderabad which include experts from different DRDL organisations as well as professors from I.I.Sc. Bangalore.

2. Sanctioning Authority : Defence Research & Development Laboratory

3. Year of Sanction : 1984-87

4. Financial grant sanctioned : Non-recurring : 24.08 lakhs

5. Name of Coordinator : Dr. Kalyan Datta

6. Names of the Faculty members associated : Prof. A. K. Roy,
Dr. S. K. Goswami,
Dr. T. K. Ghoshal,
Sri G.Das.

7. Names of the Research Personnel associated : Arup Das, S.S.O., Shewta Mehta, Scientific Officer, Rajat Maity, Research Assistant, Siddhartha Bhattacharyya, Research Asstt.

E. 1. Title of the Project : Jupiter-One

Brief Report :

The progress of Jupiter projects (one & two) has received attention of the Parliament. Conferences on this particular project have been held either at Jadavpur University or in Hyderabad every three months which include experts from DRDL organisations as well as professors of I.I.Sc., Bangalore and from other DRDL units of the country.

2. Sanctioning Authority : Defence Research & Development Laboratory

3. Year of Sanction : 1984-88

4. Financial grant sanctioned : Non-recurring : Rs. 24.65 lakhs

5. Name of the Coordinator : Dr. Kalyan Datta

6. Name of the Faculty members associated : Prof. A. K. Roy, Dr. S. K. Goswami, Dr. T. K. Ghoshal and Sri G. Das

7. Names of the Research Personnel associated : Nandini Sarkar, Research Asstt., Molly Biswas, Research Asstt.

F. 1. Title of the Project : Centre for Knowledge Based System

2. Brief Report :

Proposed activities of the Centre include setting up of the necessary computational facilities, human resource development, information exchange with similar Centres, carrying out research in selected areas.

Bharat Heavy Electricals Limited has approached the Centre for assistance in developing Expert System for Power Plant fault diagnosis.

3. Sanctioning Authority : MHRD

4. Year of Sanction : 1987

5. Financial grant sanctioned : Non-recurring : Rs. 25.00 lakhs

6. Name of the Coordinators : Dr. T. K. Ghosal, Dr. K. K. Datta

G. 1. Title of the Project : Development of Commutation Meter for D.C. Machines.

Brief Report :

Commutation is an inherent physical process in the function of d.c. machines. The phenomenon of commutation, due to its very complex nature, demands extensive study to ensure belts design of d.c. machines in general and special duty machines in particular.

The project envisages a study of the commutation process, specially the generation of R.F. voltage from machines, through simulation in a synthetic machine and also the development of a suitable instrumentation system for the purpose of comparison of the machine performance at the bruches.

The activities include :

(i) The development of a synthetic machine for studying the degrees of influence of the various factors.
(ii) The development of commutation meter, and
(iii) Study of the ratio interference and its suppression methods in commutating machines.

2. Sanctioning Authority : Electronics Commission, Govt. of India

3. Year of Sanction : 1984

4. Financial grant sanctioned : Non-recurring : Rs. 4.35 lakhs, Recurring : Rs. 2.586 lakhs

5. Name of the Coordinator : Prof. Sujay Basu

6. Names of the Faculty members associated : Prof. R. K. Mondal, Prof. D. C. Patranabis, E.T.C.E. Dept., Dr. A. Rakshit, Sri N. Deb

7. Names of the Research Personnel : Abdur Rouf, Project Engineer, O. N. Sanyal, Project Technician, Biswanath Banerjee, Project Technician, Debasish Bhattacharjee, Project helper.

H. 1. Title of the Project : "Development of a 200W wind Electric Generator".

Brief Report :

The 200W wind Electric Generator was conceived, designed and developed by the Wind Energy Group School of Energy Studies, within the brief span of 18 months. The wind turbine and the generator, developed by the Group is perhaps the First endeavour to develop the State-of-art technology on an entirely indigenous basis. The specially designed wind turbine comprising three Fibreglass blades produce the requisite rotatory motion and after being sleeped up in the ratio of 1 : 13 provides the mechanical input to a 24V, 200 W Special purpose D.C. generator for production of electrical power and subsequent charging of the storage battery. The system starts operating at a low threshold wind velocity of 8 KMPH.

The system is shortly being installed at Jheel Meel in Salt Lake City and is expected to commence significant generation from December.

2. Sanctioning Authority : Science & Technology Committee, State Planning Board, Govt. of West Bengal.

3. Year of Sanction : 1985-86

4. Financial grant sanctioned : Rs. 86,500/- including salary of Project personnel for 18 months.

5. Name of the Chief Investigator : Prof. Sujay Basu

6. Names of Project Personnel Associated : Soumya Sen Sharma, Subhasis Neogi.

I. 1. Title of the Project : Performance of Synchronous Machine under loss of Excitation.

Brief Report :

The performance of Synchronous Machines under loss of excitation is being assessed through mathematical models & coumputer simulations. The study is being made in the following areas :

(a) Electromagnetic & Electromechanical transients following Loss of Excitation (LOE).

(b) Change in steady state reactive power flow with load under LOE : load-flow study for determining the under voltage profile, and

(c) Experimentation in support of the mathematical analysis and evaluation of physical behaviour under LOE.

2. Sanctioning Authority : CBIP & W.B.S.E.B.

3. Year of Sanction : 1986

4. Financial grant sanctioned : Rs. 50,000/-

5. Name of the Chief Investigator : Prof. Sujay Basu

6. Names of Project Personnel Associated : Mr. A. K. Sanyal, Mr. P. K. Chatterjee

Electronics & Tele-Com. Engineering :

A. 1. Title of the Project : Computer Literacy and Studies in Schools (Class) Project.

Brief Report :

The main functions of the project are to organise various teachers' (School) training programmes and to provide logistic supports to the schools attached to them. There is not much scope of pursuing R & D work in the project.

The project has conducted the following activities :

(a) Seven teachers' training programme for the schools in different times.
(b) Four seminars for teachers conducted by the project.
(c) Two advanced training courses for teachers have been conducted by the project.
(d) One refresher's course was organised with the teachers.

About 35 schools are interested in this project for providing logistic support. One project fellow is associated to look after the day to day activities of the project. Few software packages like work processor package, a graphics package, computer aided instructions etc. were also developed under the project.

2. Sanctioning Authority : N.C.E.R.T., Govt. of India,

3. Year of Sanction : 1984

4. Financial grant sanctioned : Rs. 3,09,000/-

5. Name of the Project Coordinator : Prof. D. K. Basu

6. Names of the Faculty members associated : Prof. R. Dattagupta, Sri S. K. Roy and Mrs. M. Nasipuri

7. Names of the Research Fellows associated : Sri Goutam Sarkar

B. 1. Title of the Project : Centre for Microprocessor Application for Training Education and Research.

Brief Report :

The Centre has already conducted more than 10 different training programmes for the teachers of engineering colleges, engineers of industries during the period from December, 1983. A total number of about 160 persons have been trained. The Centre has also developed the basic infrastructural facilities in the field on micro-processor applications and conducted a number of project works. A number of research papers on applications of microprocessors have been presented in International Conferences.

2. Sanctioning Authority : Ministry of Human Resource Development, Govt. of India,

3. Year of Sanction : 1983

4. Financial grant sanctioned : Rs. 38,66,000/-

5. Name of the Project Coordinator : Prof. D. K. Basu

6. Names of the Faculty members associated : Prof. P. Kundu, Prof. R. Dattagupta, Sri S. K. Roy, Prof. S. Ghosh and Dr. P. K. Das (both on leave)

7. Names of the Research Fellows associated : Sri M. T. Kundu, Sri S. Banerjee and Mrs. E. V. Ananta Laksmi

C. 1. Title of the Project : CSE Augmentation

Brief Report :

For augmenting computational facilities of the Dept. following Equipment have been procured :

4–CPM Based Systems, 10 PC/XTS Auguentation of HP 1000/ 45 to 10 users System, 10 micro-processor kits etc.

2. Sanctioning Authority : MHRD

3. Year of Sanction : 1984

4. Financial grant sanctioned : Non-recurring : Rs. 30 Lakhs

5. Name of the Project Coordinator : R. Dattagupta

6. Nos. of the Faculty members associated : 10

D. 1. Title of the Project : Project Implementation and consolidation Plain Paper X-ray.

Brief Report :

X-ray picture on Plain Paper has been developed successfully. Technology has been transferred to the industry. Calcutta Medical College has recently bought one machine and working on official basis. Semi-automatic machine is being developed presently.

2. Sanctioning Authority : Department of Electronics, Govt. of India.

3. Year of Sanction : 1984

4. Financial grant sanctioned : Total Rs. 9.77 Lakhs

5. Name of the Project Coordinator : Prof. M. K. Mukherjee

6. Name of the Faculty members associated : Prof. P. K. Mukherjee

7. Name of the Research Fellow associated : Dr. Nanda Dulal Mukherjee

E. 1. Title of the Project : Project on IC Design and Fabrication.

Brief Report :

The primary aim of the project is manpower training in the area of IC fabrication. A/C site has been prepared. Diffusion furnaces, Mask Alligner, Spinner, R. F. Sputtering unit, Prober have been installed. Completion of testing is expected in a few months.

2. Sanctioning Authority : MHRD

3. Year of Sanction : 1986

4. Financial grant sanctioned : Non-recurring : Rs. 20 Lakhs, Recurring : Rs. 5 Lakhs

5. Name of the Project Coordinator : Prof. M. K. Mukherjee

6. Names of the Faculty members associated : Prof. D. K. Basu, Dr. A. K. Bandyopadhyay, Prof. A. R. Saha, Dr. (Mrs.) S. Das, Dr. R. Duttagupta, Prof. D. Mukherjee

F. 1. Title of the Sponsored Project : Low Cost Solar Cell

Brief Report :

Low Cost Solar cell using CdTe–CdS thin film has been tried. The CdTe has been deposited by Electro-Chemical deposition technique. CdS has been deposited over CdTe by Vacuum evaporation technique. Initial results showed some performance regarding the formation of Junction.

2. Sanctioning Authority : West Bengal Science & Technology Committee.

3. Year of Sanction : 1984

4. Financial grant sanctioned : Non-recurring : Rs. 0.75 Lakhs, Recurring : Rs. 0.50 Lakhs

5. Name of the Chief Investigator : Prof. M. K. Mukherjee

6. Names of the Faculty members associated : Dr. (Mrs.) S. Das

7. Names of the Research Fellows associated : (1) K. C. Mondal, (2) G. S. Sanyal

G. 1. Title of the Project : New Plan Scheme for Expansion of Facilities in Instrumentation.

Brief Report :

Administrative Committee of the project has been formed. The project work will start soon.

2. Sanctioning Authority : MHRD

3. Year of Sanction : 1987

4. Financial grant sanctioned : Rs. 10 Lakhs

5. Name of the Project Coordinator : A. Kar

6. Names of the Faculty members associated : Prof. D. C. Patranabish, Prof. A. K. Mandal, Dr. P. K. Banerjee, Prof. M. K. Mukherjee.

H. 1. Title of the Project : Appropriate Automation Promotion Programme.

Brief Report :

AAPP, Eastern Regional Centre was set up at J.U. during 1984, with the object of helping the industry by developing microprocessor based control system for Process Control applications and modernisation of instruments.

A concerted drive was made to identify the industries and other process to develop hardware and software to create awareness among industrial management. Microprocessor based system was introduced in the following industries in their fields of interest :

(i) M/s. Indian Explosive Limited by developing microprocessor based pH controller.

(ii) An operator guidance system for M/s. Berger Paints.

(iii) Automation at M/s. Kalyani Breweries (Chemical Plant).

Laboratory design, development and fabrication of a number of items, e.g. 8085 based micro-computer board, process model for concentration control of dye-water mix have been made.

At present this centre is actively engaged in the automation of the following industries : (i) Tea Industry (ii) Jute Industry (iii) Mini Cement Plant.

2. Sanctioning Authority : Dept. of Electronics, Govt. of India & United Nations Development Programme.

3. Year of Sanction : 1984

4. Financial grant sanctioned : Rs. 29,05,300/- (upto 30. 6. 87)
Non-recurring : Rs. 12,20,000/- Recurring : Rs. 16,85,300/-

5. Name of the Project Coordinator : Prof. A. K. Mandal

6. Names of the Faculty members associated : Prof. P. Kundu, Prof. S. Ghosh, Dr. P. K. Das, Mr. B. B. Bhowmick, Mr. A. Chaudhury, Mr. C. Mazumder.

7. Names of the Research Fellows associated : Sri H. Pal, Sri A. Sarkar, Sri A. Sinha, Sri S. Roychaudhury, Sri S. Mandal.

I. 1. Title of the Project : Microstrip antenna arrays for radar and navigational aids.

Objectives :

(a) To obtain measured data on the mutual coupling between microstrip radiators.

(b) To develop a theoretical method of computation of mutual coupling between microstrip radiators.

(c) To investigate various methods of feeding networks for microstrip antenna arrays both experimentally and theoretically in order to ascertain their relative merits and demerits.

(d) To design, fabricate, test and analyse an 8-element broadside microstrip antenna array.

(e) To design, fabricate, test and analyse an 8-element scanning microstrip antenna array capable of scanning in both E and H planes using X-band PIN diode phase shifters and Butler factorial digital switching network.

2. Sanctioning Authority : Department of Electronics, Govt. of India.

3. Year of Sanction : 1985

4. Financial grant sanctioned : Non-recurring : Rs. 10.5 lakhs, Recurring : Rs. 9.368 lakhs

5. Name of the Project Coordinator : Dr. D. R. Poddar

6. Names of the Faculty members associated : Prof. S. K. Chowdhury, Dr. D. R. Poddar.

7. Names of the Research Fellows associated : A. Mukherjee, P. Paul, J. R. Roy.

Food Technology & Biochemical Engineering :

A. 1. Title of the Project : "Survey of Food Industries for preparation of position paper on opportunities for entrepreneurship Development".

Brief Report :

Scope of various processed foods for industry development is being studied. It also includes projected demand for different food items including processed food for the year 1990 & 2000 A.D. Scope for entrepreneurship development is also being investigated.

2. Sanctioning Authority : D.S.T.

3. Year of Sanction : 1986

4. Financial grant sanctioned : Rs. 1,71,500/-

5. Name of the Project Coordinator : Prof. D. R. Chaudhuri

6. Names of the Persons associated : (i) Asit Baran Das, Research Associate, (ii) Uttam Bandyopadhyay, Statistician.

B. 1. Title of the Project : Microbiological reduction of quininone to quinidine.

Brief Report on the Project :

Demand for quinidine sulphate, a minor constituent of cinchona alkaloid, has increased largely for its use against cardiac ailments. A microbiological process is being developed for conversion of quininone, an oxidation product of quinine to quinidine.

A yeast culture isolated by soil enrichment technique and identified as *Hansenula anomala var schneggii* was found capable of converting quininone to quinidine (78% conversion) in shake flask process. At present, efforts are made to use immobilized enzyme or whole cell techniques for bioconversion of quinine to quinidine.

2. Sponsoring Authority : DST, Govt. of India

3. Year of Sanction : 1985

4. Financial grant sanctioned : Non-recurring : Rs. 1,24,740/-, Recurring : Rs. 1,53,800/-

5. Name of the Coordinator : Dr. S. K. Majumdar

6. Names of the Research Fellows associated : (i) Dr. Lalitagauri Ray, (2) Sm. Ratna Nandi.

C. 1. Title of the Project : Studies on *Bacillus* thuringiensis for development of improved mosquito carvacidal strains.

Brief Report :

The development of chemical insecticide resistance and growing concern for environmental pollution need that an alternative to chemical insecticide be sought whenever possible. In the field of eradication of malaria, emphasis has also been given on biological control agents. The biological control agent such as *Bacillus thuringiensis* H-14 has gained importance for control of mosquito.

Work is in progress on the development of fermentation process for production of the mosquitocide by *B. thuringiensis*. Glucose has been found to be the suitable carbon source for production of the insecticide. A rapid and convenient haemolytic method of assay of the insecticide has been developed to replace the laborious and time-consuming bioassay method against mosquito larvae.

2. Sanctioning Authority : C.S.I.R.

3. Year of Sanction : 1986

4. Financial grant sanctioned : Recurring : Rs. 19,600/- per year.

5. Name of the Coordinator : Dr. S. K. Majumdar

6. Name of the Research Fellow associated : Deb Prasad Sikdar.

D. 1. Title of the Project : "Biopolymer interactions at interfaces".

Objectives :

(a) preparation and characterisation of pure proteins nucleic acids, lipids and fats ;
(b) development of analytical methods for quantitative estimation of biopolymer and surfactants in the mixture ; and
(c) studies of absorption of individual biopolymer and mixture of biopolymers at various types of interfaces and thermodynamic analysis of the data for protein-protein protein-lipid and protein-nucleic acid interactions at interfaces.

2. Sponsoring Authority : CSIR

3. Year of Sanction : 1986

4. Grant sanctioned : Staff : Rs. 21,000/- (per year), Contg. : Rs. 30,000/- (per year).

5. Name of Investigator-in-charge : Prof. D. K. Chattoraj

6. Names of Junior Research Fellows : (i) Sm. Susmita Hajra, (ii) Sri Pradip K. Mahapatra

E. 1. Title of the Project : Distribution of oxidised lipid (cholesterol and fat) in raw and processed food and their effect on serum lipid classes".

Brief Report :

To analyse the oxidised cholesterol derivative and oxidised fat in raw foods and compare them with foods cooked and processed under different technique, both traditional and commercial in order to establish the role and importance of oxidised lipid in atherosel erosis and in coronary heart diseases.

2. Sanctioning Authority : ICMR

3. Year of Sanction : 1987

4. Financial grant sanctioned : Rs. 2,61,600/- for 3 years (Recurring).

5. Name of the Principal Investigator : Prof. Sunit Mukherjee
Co-principal Investigator : Dr. K. L. Mukherjee, Dr. A. Bhaduri and Dr. D. P. Sen.

6. Name of the Faculty member associated : Dr. Shankar Mukherjee

7. Names of the Research Fellows associated : Dr. (Mrs.) Srabani Sen and Dr. (Mrs.) Rita Banerjee

F. 1. Title of the Project : Modified and controlled atmosphere storage of fresh fish.

Brief Report :

To investigate the sensory, chemical and microbial changes occurring in marine and fresh water fish stored in modified/controlled atmosphere and also to work out cost benefit relationship and packaging requirement for bulk transport.

2. Sanctioning Authority : Indian Council of Agricultural Research.

3. Year of Sanction : 1985

4. Total grant sanctioned : Rs. 1,38,000/-

5. Name of the Project Coordinator : Prof. B. N. Srimani

6. Research Fellowships : 2 SRF

G. 1. Title of the Project : Bioconversion of wastes from industrial & domestic sectors.

Brief Report :

Distillery wastes were utilised for the bioconversion process for the production of biogas. It has been noticed that the wastes, not only biogas but biomass also produced during the conversion, might be a good fertiliser. In turn environmental pollution can be suitably checked.

Two stage bioconversion process has been carried out for effective utilization of wastes.

2. Sanctioning Authority : Dept. of Environment & Forestry.

3. Year of Sanction : 1986

4. Financial grant sanctioned : Non-recurring Rs. 80,000/-, Recurring : Rs. 1,17,000/-.

5. Name of the Project Coordinator : Dr. Pratap Chakraborty

6. Names of the Faculty members associated : Dr. R. Nandi, Dr. A. Bandyopadhyay.

7. Name of the Research Fellow associated : Sm. Tapasi Sengupta.

H. 1. Title of the Project : Nutritive value of Mustard protein.

Brief Report :

Chemical composition shows mustard seed contains 24.5% protein & 42.8% oil. Removal of hull can be done by soaking followed by cracking, sieving & separation was found effective.

Unlike other oilseeds & legumes mustards have distinctly different two isoelectric point. The yield of total protein recovery in wet process by removing hull has reached 66.8% of 89% protein content. Minimum point of nitrogen dispersion occurred at pH 4.0 & 6.2. Nutritional quality of mustard protein was studied by rat feeding experiment.

2. Sponsoring Authority : Dept. of Food, Govt. of India.

3. Year of Sanction : 1984–87 (completed)

4. Financial grant sanctioned : Non-recurring Rs. 12,000/-, Recurring Rs. 80,000/-.

5. Name of Project Coordinator : Dr. Pratap Chakraborty

6. Name of Research Fellows : Anjali Roy, Tapasi Sengupta

Mechanical Engineering :

A. 1. Title of the Project : CAD/CAM Project.

Brief Report :

The main object of the project is to generate manpower at different levels and creation of R & D facilities to support the industries of the eastern regions in the CAD/CAM area.

2. Sanctioning Authority : MHRD

3. Year of Sanction : 1987

4. Financial grant sanctioned : Non-recurring Rs. 20.4 Lakhs, Recurring Rs. 3.6 Lakhs.

5. Name of Coordinator : Prof. Dr. R. N. Banerjee

6. Names of Faculty members associated : Dr. T. K. Chatterjee & Sri S. K. Ghosh

B. 1. Title of the Project : Water Resources Management.

Brief Report :

The project is meant for the development of infrastructural facilities in the emerging area of Water Resources Engineering at this University. The facilities compirse both promoting R and D work in this inter-disciplinary field and also development of man-power training programme.

With a view to developing infrastructural facilities it has been proposed to install a Mini-Computer Laboratory to develop software which will be used both for R and D works as well as man-power training.

Sri Debabrata Dutta, a research associate has recently joined the project. We are expecting to install the Computer by the end of this year. Orders for the Computer and for other accessories have already been placed.

The space preparation for the installation of the Computer is nearing completion.

With a view to developing man-power training we have already submitted a proposal to the U.G.C. and the Ministry of Human Resource Development for introducing three-semester P. G. Programme leading to the M. E. Degree in the interdisciplinary field of Water Resources Engineering.

2. Sanctioning Authority : MHRD

3. Year of Sanction : 1987

4. Financial grant sanctioned : Non-recurring : Rs. 7.50 Lakhs

5. Name of Coordinator : Prof. Dr. Balaram Bose

6. Names of Faculty members associated : Prof. Dr. Sukritranjan Bhattacharya (M.E. Dept.), Dr. D. N. Bandyopadhyay (Dept. of Geol. Sciences).

7. Name of Research Fellow associated : Sri Debabrata Dutta.

Pharmacy :

A. 1. Title of the Project : Molecular Mechanism of action of Anthracycline Antitumour Antibiotics.

Brief Report :

Anthracycline antitumour antibiotics, adriamycin and nogalamycin render their antitumour activity by complex formation with chromosomal DNA leading to inhibition of transcription. Present study on interaction of these drugs with chromatin was undertaken to ascertain whether these anthracyclines uniformly interact throughout the chromatin or they have any conformational preference. Spectrofluorometric studies on interaction of adriamycin and nogalamycin

with D-Nase-II digested chromatin suggest preferential binding of these drugs with transcriptionally active regions of sarcoma-180 chromatin.

2. Sanctioning Authority : C.S.I.R.

3. Year of Sanction : 1985

4. Financial grant sanctioned : Non-recurring Rs. 50,000/-, Recurring Rs. 78,200/-

5. Name of the Coordinator : Dr. R. K. Neogy

6. Name of the Faculty member associated : Prof. S. Pal.

7. Names of the Research Fellow associated : Sri Pulak Tripathi.

B. 1. Title of the Project : "Pharmacological Studies of Some Mycotoxins in Animals".

Brief Report :

In 1985, one new mycotoxin (D-toxin) was isolated, purified and identified in our laboratory from *P. digitatum* [Empirical Formula, $(C_6 H_6 NO_4)_n$; m.p. 156.4°C, LD50–23.99 mg/kg body cut., i.p.]

Six structural analogues (Acetylated, Benzoylated, Ethoxy, Methoxy, Nicatinyl and Aryloxy MT 81) were prepared. Acetylated and Benzoylated derivatives are now subjected to comparative assessment along with the parent toxin (MT 81) for treatment.

For histopathological studies GIT and ovary have been taken. At present, the team is actively engaged in the estimation of biogenic amines, MAO, COMT in order to correlate the CNS activity.

2. Sanctioning Authority : CSIR

3. Year of Sanction : 19. 9. 1984

4. Financial grant sanctioned : Non-recurring Rs. 24,000/-, Recurring Rs. 1,40,000/-

5. Name of the Coordinator : Prof. (Mrs.) Malaya Gupta

6. Names of the Research Fellows associated : Mrs. Archana Roy, M.Pharm, Miss Gargi Roy, M.Sc.

C. 1. Title of the Project : "Studies on the Lipophilicity or Partition Coefficient and Phospholipid binding in relation to biological activity of some drugs acting on Cardiovascular system".

2. Sanctioning Authority : U.G.C.

3. Year of Sanction : 1986

4. Financial grant sanctioned : Recurring : Rs. 20,000/- p.a., Rs. 25,000/- p.a.

5. Name of the Coordinator : Dr. (Mrs.) C. Sengupta.

7. Name of Junior Research Fellow : Sm. Hasi Dutta

D. 1. Title of the Project : "Molecular connectivity, ($^{m}\chi_t$) Partition coeffecient and chromatographic Parameter in relation to biological activity of some antiamebic drugs".

2. Sanctioning Authority : CSIR

3. Year of Sanction : 1986

4. Financial grant sanctioned : Recurring : Rs. 25,000/- p.a.

5. Name of the Coordinator : Dr. (Mrs.) C. Sengupta

6. Name of the Faculty member associated : Prof. A. U. De

7. Name of Junior Research Fellow : Sm. Mita Sengupta

E. 1. Title of the Project : Microencapsulation of Drug to study controlled release Kinetics.

Brief Report :

With a view to minimising the harmful side-effects of drugs used for long term therapy, the project has been undertaken to encapsulate the drugs with polymers like ethyl cellulose, cellulose acetate Phthalate, Eudagrit—RS etc. for controlled release actions. This encapsulated drug delivery system not only economises the consumption of drug but also at the same time it masks the bitterness and maintains the potency of drug in adverse environmental condition.

2. Sanctioning Authority : U.G.C.

3. Year of Sanction : 1986

4. Financial grant sanctioned : Non-recurring Rs. 15,000/-, Recurring Rs. 94,000/-

5. Name of the Coordinator : Dr. Tapan Kumar Pal

6. Name of Faculty member associated : Prof. S. P. Pal

7. Name of Research Fellow associated : Shri Pranab Ranjan Pal

F. 1. Title of the Project : "Studies on Toxicity, metabolism, absorption and climination pattern & mechanism of active of two potential anti-inflammatory indan-I-acetic acids".

Brief Report :

Various indan derivatives are synthesised and syntheses of many are going on. Many of these synthetic products showed appreciable anti-inflammatory / anti-diabetic / antihypertensive/ anti-epileptic/anti-chloresterolemic activity as well as plant growth activity which are being explored through this scheme.

2. Sanctioning Authority : U.G.C.

3. Year of Sanction : 1983 upto 1988

4. Financial grant : Rs. 79,200/- for 3 years

5. Name of Project Coordinator : Professor Samir Chandra Lahiri

6. Names of Research Personnel : Dr. Akhilesh Roy, Sri Soumendra M. Roy.

G. 1. Title of the Project : Synthesis and screening of arylalkanoic acids and their tetrazohyl, triazolyl and iminazolyl analogues as potential (a) anti-inflammatory (b) hypotensive (c) anti-diabetic agents.

Brief Report :

Various indan derivatives are synthesised and syntheses of many are going on. Many of these synthetic products showed appreciable anti-inflammatory/anti-diabetic / antihypertensive / anti-epileptic / anti-chloresterolemic activity as well as plant growth activity which are being explored through this scheme.

2. Sanctionng Authority : CSIR

3. Year of Sanction : 1985 for 3 years

4. Financial grant : Recurring : Rs. 58,800/-

5. Name of Project Coordinator : Professor Samir Chandra Lahiri

6. Name of Research Fellow associated : Manoranjan Adak

H. 1. Title of the Project : Microencapsulation of salbutamol sulphate to study In-vivo and in-Vitro release Kinetics.

Brief Report :

With a view to minimising the harmful side-effects of drugs used for long term therapy, the project has been undertaken to encapsulate the drugs with polymers like ethyl cellulose, cellulose acetate Phthalate, Eudagrit—RS etc. for controlled release actions. This encapsulated drug delivery system not only economises the consumption of drug but also at the same time it masks the bitterness and maintains the potency of drug in adverse environmental condition.

2. Sanctioning Authority : I.C.M.R.

3. Year of Sanction : 1987

4. Financial grant sanctioned : Recurring Rs. 52,000/-

5. Name of the Coordinator : Dr. Tapan Kumar Pal, Reader.

6. Name of Faculty member associated : Prof. S. P. Pal

I. 1. Title of the Project : "Studies on pharmacologically active substances in Jelly fish Toxin".

Objectives :

(i) Fractionation of toxic constituents.
(ii) Investigation of identity, nature and bio-pharmacological action of whole toxin and constuents.
(iii) Examination of possible antagonists / inhibitors of the toxin.

2. Sanctioning Aurhority : Indian Council of Medical Research

3. Year of Sanction : 1986

4. Financial grant sanctioned : Recurring : Rs. 66,000/- (1986–1989)

5. Name of the Coordinator : Dr. A. K. Nag Chaudhuri

6. Name of Associated Research Fellow : Shri Tushar K. Ghosh

J. 1. Title of the Project : Investigation on Plant growth activity among some simple and substituted indan acid and, their tetrazohyl and iminazolyl analogues.

Brief Report :

Various indan derivatives are synthesised and syntheses of many are going on. Many of these synthetic products showed appreciable anti-inflammatory / anti-diabetic / antihypertensive / anti-epileptic / anti-chloresterolemic activity as well as plant growth activity which are being explored through this scheme.

2. Sanctioning Authority : Hindusthan Lever Research Foundation, Bombay.

3. Year of Sanction : 1985 for 3 years

4. Financial grant : Recurring : Rs. 1,54,000/- for 3 years

5. Name of Project Coordinator : Professor Samir Chandra Lahiri

6. Name of Associated Research Fellow : Sm. Bipasha Chatterjee

K. 1. Title of the Project : 'Studies on Viper Venom and Antivenin'.

Objectives :

(i) Study of biological actions of venom in context of haemorrhagic activity.

(ii) Fractionation venom to locate haemorrleagic activity—Pharmacological study of the fraction.

(iii) Production of potent antivenim.

(iv) Search for antagonists

2. Sanctioning Authority : Indian Council of Medical Research (Both projects)

3. Year of Sanction : 1987

4. Financial grant sanctioned : Recurring : Rs. 1,36,200/- (1987–1990)

5. Name of the Coordinator : Dr. A. K. Nag Chaudhuri

6. Names of associated Research Fellows : Sm. Arundhati Chakraborti, Shri Dubakar Chakraborti.

Production Engineering :

A. 1. Title of the Project : Design and Development of Integrated Grain Conveyor.

Brief Report :

The main emphasis of the present project is to minimise physical destruction of food grains in pre-storage and storage state as well as to maintain the quality of food grains by adopting more scientific transfer and storage devices.

To make such devices working in rural environment it is proposed to top solar energy and hence to develop solar energy based grain dryer system used with solar heater as well with a mini-steam generator. The research staff is presently engaged in optimising design for such a solar grain drier system.

2. Sponsoring Authority : U.G.C.

3. Year of Sanction : 1986

4. Financial grant sanctioned : Non-recurring Rs. 1.80 lacs, Recurring Rs. 25,000/- per yr.

5. Name of the Project Coordinator : Prof. Dr. A. Bhattacharyya

6. Names of the Faculty members associated : Prof. Dr. B. K. Mullick, Dr. J. Saha and Mr. B. Sarkar.

7. Names of the Research Fellows associated : Mr. T. Pachal, Mr. B. Bhattacharyya.

B. 1. Title of the Project : Analysis of dynamic Man-Machine Task Symbiosis in a Manufacturing System.

Brief Report :

The project envisages to model the effects of variable stress, strain and environmental factors, human capacity on work place layout with particular reference to "Flexible Manufacturing Systems". The factors being considered are :

Postural Changes, location and orientation of the operator, machine and job, vibration characteristics, comfort levels, noise levels, illumunation.

Simulated laboratory experiments for study and detail analysis of movements of kinetic and kinematic elements of human body are being designed.

The proposed study includes building of a model with facilities for computer interaction yielding direct readings in computer VDUs.

2. Sponsoring Authority : C.S.I.R.

3. Year of Sanction : 1987

4. Financial grant sanctioned : Non-recurring : Rs. 2.50 lacs
Recurring : Rs. 0.30 lacs/year+2 Research Asso.

5. Name of the Investigator-in-charge : Prof. Dr. B. K. Mullick

6. Names of the Faculty members associated : Dr. S. K. Mukherjee, Dr. A. Bhattacharyya

7. Names of the Research Fellows associated : Mr. T. Pachal, P. Debnath, G. Chakraborty

C. 1. Title of the Project : Strengthing the area of "Product Development".

Brief Report :

The Department has planned and successfully carried out several significant development activities under this programme.

The Department has developed colloid mills and drum dryer unit suitable for rural application in the area of enhancement of productivity and many practical application of fluidised bed dryer technology for preservation of agricultural, fruit, dairy and fish products. These developments have resulted in excellent results during field trials.

On the other hand the Department has also done significant work in the area of computer application is teaching of graphics science and developed a series of under-graduate courses leading to a course on Computer Graphics. Presently the Department is also engaged in, developing a graph theory based automated dimensioning software. The Department has also developed a CAD package for design of cutting tools.

In the second phase the Department has already initiated the design and development of a microprocessor based automatic foundry system.

2. Sanctioning Authority : MHRD

3. Year of Sanction : 1984

4. Financial grant sanctioned : Non-recurring Rs. 20.00 lacs, Recurring Rs. 1.50 lacs.

5. Name of the Coordinator : Prof. Dr. A. Bhattacharyya

6. Names of the Faculty members associated : Dr. J. Saha, Dr. S. K. Mukherjee, Mr. B. Sarkar, Prof. Dr. B. K. Mullick, Dr. B. N. Lahiri, Mr. S. K. Sanyal.

7. Names of the Research Fellows : Mr. T. Pachal, Mr. P. K. Mahalanabis

D. 1. Title of the Project : Development of Area of Maintenance and Tribology.

Brief Report :

The department plans to build up a facility with the twin objectives of providing support to industries as well as to build up a research infrastructure in the area of Maintenance Engineering in General and Tribology in particular.

The department wants to concentrate in the area of condition monitoring. The major equipment being procured include an advanced level of "FERROGRAPH", microprocessor based "Ultrasonic Flaw Detector" and "Friction Testing" set up and complete vibration monitoring set up.

Side by side some setups for fundamental research and analysis of "Tribology" are also being designed & fabricated.

2. Sponsoring Authority : MHRD

3. Year of Sanction : 1987

4. Financial grant sanctioned : Non-recurring : Rs. 13.00 lacs, Recurring Rs. 2.00 lacs.

5. Name of the Project Coordinator : Prof. Dr. S. K. Basu

6. Names of Faculty members associated : Prof. Dr. A. Bhattacharyya, Dr. S. K. Mukherjee, Dr. S. K. Sorkhel, Mr. K. K. Datta.

7. Names of Research Associates associated : Mr. P. K. Mahalanabish.

School of Biosciences & Engineering :

A. 1. Title of the Project : Mechanics of Surgical Cutting of Hard Tissues and Development of Indigenous Cutting Tools and Appliances.

Brief Report :

Under this project, work has been carried out on the basic mechanics of cutting of bone and teeth. The effects of anisotropy, tool geometry and other cutting parameters on cutting forces, chip formation, tool wear and cutting temperatures have been studied. Development of some orthopaedic implants from indigenous materials are being carried out after tests for biocompatibility and mechanical properties. Dynamic compression plates, bone screws, rush nails and wires for implants have been made for clinical trials in collaborating hospitals.

2. Sponsoring Authority : Department of Science and Technology, Govt. of India.

3. Year of Sanction : 1984

4. Financial grant : Rs. 3.23 lakh

5. Name of Project Coordinator : Prof. Dr. Subrata Pal.

6. Name of Associated Faculty member : Dr. S. K. Ghosh.

7. Name of Associated Research Scientist : Dr. N. Bhadra.

B. 1. Title of the Project : Effect of Non-Invasive Pulsed Electro-Magnetic Field on Bone Growth and Fracture Healing.

Brief Report :

This project is carrying out tests on the effect of various types of pulsed electromagnetic fields (PEMF) on chick embryo model to study bone growth by mechanical strength test of bones and mineral composition. Study of the effect of PEMF on fracture healing is being done on surgically created non-unions in albino rats and examining for healing by radiological and mechanical strength tests and histological studies. Finally, PEMF stimulators will be used for human patients.

2. Sponsoring Authority : Indian Council of Medical Research.

3. Year of Sanction : 1985

4. Financial grant : Rs. 1.09 lakh

5. Name of Project Coordinator : Prof. Dr. Subrata Pal.

6. Name of Faculty members associated : Dr. T. K. Ghoshal.

7. Name of Research Officer associated : Dr. N. K. Das.

C. 1. Title of the Project : Electronic Rehabilitation Aids for the Physically Handicapped.

Brief Report :

This is a three year project for development of several clinical instruments and rehabilitation aids for the orthopaedically handicapped and leprosy patients. The devices being developed include : (i) Electromyographic Biofeedback Device for Movement Retraining : (ii) Functional Electrical Stimulator ; (iii) Nerve Conduction Velocity Meter ; (iv) Externally Powered Myoelectric Prosthesis ; and (v) Protective Devices for Leprosy Patients.

2. Sponsoring Authority : Department of Electronics, Govt. of India.

3. Year of Sanction : 1986

4. Financial grant : Rs. 6.85 lakh

5. Name of Project Coordinator : Prof. Dr. Subrata Pal.

6. Names of Associated Faculty members: Dr. T. K. Ghoshal, Dr. A. Majumdar, Dr. N. Bhadra (Research Scientist).

7. Name of Research Engineer associated : Dr. D. N. Tibarewala.

COMPUTER-AIDED DESIGN CENTRE

The Centre has been set up to help and promote Computer Aided Design (CAD) activities among the industries mainly in the field of Process Control and Heavy Engineering. The Centre currently has a ND-560/CX super-mini computer from Norsk-Data, Norway. It has got some specialized software packages namely GKS (Graphic Kernel System), a package that offers widely used routines to transform the design outputs into visuals on the screen or on the plotter, a structural analysis package namely SESAM-80 (an equivalent of SAP). A drafting package with 3D extensions, in the form of DOGS & BOXER, a solid modelling package has also been installed here.

The Centre has already organised a number of training programmes on "Appreciation of CAD", "SESAM-80'., ' Graphics'. A course on "Computer Graphics & Computer Aided Drafting will be organised from 14th December, 1987.

During the year 1986-87 several industrial projects have been undertaken. Projects which have been completed are :

(1) Gear Box Design of GKW Limited, Calcutta.

(2) Design of Steel Brows of Hooghly Dock & Port Engineers Ltd., Calcutta.

Projects undergoing are :

(1) Computerization of mini steel plants.

(2) Design of Hydraulic press for manufacturing magnets of Magnetix India Ltd., Bhubaneswar.

2. Sanctioning Authority : Department of Electronics, Govt. of India & UNDP.

3. Year of Sanction : 1982

4. Financial grant sanctioned : Rs. 85 Lacs

COMPUTER ASSISTED INSTRUCTION (CAI) PROJECT

Initiated by the Vice-Chancellor, the University from its own resources has taken up a project to build an infrastructure for authoring Computer Aided Instruction materials. A committee has been set up for this purpose under the Chairmanship of the Vice-Chancellor and with the Dean, Faculty of Engineering and Technology as Coordinator. The laboratory facility is currently located at the Control System Laboratory, Electrical Engineering Department. The facility comprises of 4 Nos. PC/XT Compatibles, 2 Nos. PC/AT Compatibles, Dot matrix printers, Plotter and Digitizer. A single user license of an indigeneous authoring tool (software package) "CAMPUS" has been obtained and the software installed. Development of three sample courses is in progress. Future plan includes for the courseware development in Engineering, Science and Humanities disciplines.

Dr. Peter Williams, Director Microelectronics Educational Development Centre, Scotland, U.K. under the auspices of the British Council has recently (31 August–4 Sept.) visited the CAI Laboratory and delivered a series of lectures on their experience in implementing CAI. Teachers of three faculties attended the Seminar, discussions and demonstration sessions. Dr. Williams has expressed satisfaction about the infrastructure created at J.U. and proposed a CAI courseware exchange program by which MEDC and Jadavpur University can exchange CAI materials.

UNIVERSITY SCIENCE INSTRUMENTATION CENTRE (USIC)

During the year 1987-88 analytical services were given on the following sophisticated instruments.

Atomic Absorption Spectrophotometer :

During the year a total of 821 determinations (470 external and 351 internal) of 18 elements had been done with Air-Acetyline Flame System. The users include different departments of the University and other organisations like Botanical Survey of India, Indian Association for Cultivation of Science, Central Pollution Control Board, NRS Medical College, Calcutta Electric Supply Corporation, etc.

Gas Chromatograph :

During the year 110 separations were completed. The users are mainly the Department of Chemical Engineering, Pharmacy and Chemistry. Standardisation of fatty acids and CO/CO_2 estimation have been completed, Air Pollutants estimation is in the planning stage.

Fluorescence Spectrophotometer :

Several research papers on internationally reputed journals have been published based on the result obtained from the FS. On an average 70–80 elemental determinations are made per working day. Apart from the departmental scientists many scientists from outside use the FS.

Being sponsored by the University Sri R. Bhar, the Scientific Officer joined Indian Institute of Science, Bangalore, to pursue M.Tech. Course in Instrumentation.

The Principal Scientific Officer, Dr. Ghosal, attended the 12th National Symposium on Instrumentation at Chidambaram to present a paper. The Principal Scientific Officer delivered invited lectures on 'Production of Low Temperature and 'Measurement of Low Temperature' at the Operators' Training Course for Liquid Nitrogen Plant organised by the Advanced Centre of Cryogenic Research at the University.

The USIC in collaboration with the Adult, Continuing Education and Extension Centre organised two professional courses, related to instrumentation, namely, Training of Laboratory Assistants and Instrumental Technique in Analytical Chemistry.

Construction of the USIC's building has been taken up and the Centre expects to move to its own building by one year's time.

CENTRAL LIBRARY

Collection :

1. Total no. of books and periodicals including non-book materials on 31-3-1988—4,21,230.
2. Total no. of current journals and gift subscribed : 1,275.
3. Total value of books purchased during the year : Rs. 33,36,730.
4. Total value of Journals subscribed during the year : Rs. 17,87,880.

Space :

The Central Library is a three-storeyed building having a built-up area of approx. 37,000 sq. ft. The carpet area of the building is about 28,400 sq. ft. of which the stack room has an area of 8,016 sq. ft.

Each department under the three Faculties has a departmental library where current books used by the teachers and students are kept. The current issues of journals are also kept in the departmental library upto a period of three months.

Service and Facilities :

The Central Library provides the necessary facilities that are available in a grade I library. The publications and documents are procured from various sources for use of the readers. Services are rendered to the readers by answering of reference and bibliographic enquiries, inter-library borrowing and lending, prividing xerox facilities, etc. Reprographic services rendered to the staff members and students amount to 40,000 during the year.

Hours : The Central Library is kept open from 10-20 a.m. to 8-30 p.m. on all week days and 10-20 a.m. to 4-15 p.m. on Saturdays. It remains closed on Sundays.

ADULT, CONTINUING EDUCATION & EXTENSION CENTRE

It is almost four years now since the present Adult, Continuing Education and Extension Centre started functioning under the guidance of the UGC stipulations of 1982 which had emphasized the objective of bringing the University closer to the people. As is well publicized by now, the UGC wants that in addition to teaching and research, the Universities should also have another wing—called Extension—which would induce the various University departments to creatively utilize their potential for development of the community. The Adult, Continuing Education and Extension Centre, Jadavpur University has been, for the last few years, serving the various needs of the community both within the four walls of class rooms and outside in the adopted areas. Here the various programmes undertaken and the impact made on the target group are briefly described.

A. CONTINUING EDUCATION PROGRAMME

(1) For workers and Technicians

Courses : Electric Motor, Basic Transformer, Wiring and Installation, Refrigeration and air-conditioning, Diesel and Petrol Engine, Basic Welding, Engg. Measurement, Foundry Technique, Heat Treatment Technique.

The Centre has been conducting some nine courses meant for the workers and technicians employed in various industries with the primary objective of augmenting their knowledge both in theory and practice. It is hoped that this training would make them conscious participants in production. The Centre has been successful in attracting workers from all sections of a industry—large, medium and small, government, semi-government and private. Teachers from within the University and experts from outside who have rendered their services as—course-coordinators and speakers, have found the students stimulating and eager. Not much success was achieved for a few courses due to lack of infrastructural facilities and proper motivation. Nearly two thousand workers have received training under this scheme and many have got promotion and other forms of recognition from their employers. It is worth-while to mention here that the minimum qualification for admission to these courses was employment in a trade with or without any formal schooling.

(2) For unemployed youths from poor familites :

Courses : Microscope operation, Orientation to Civil construction and drawing reading, Draughtsmanship (Mechanical), T. V. Servicing, Basic Electronics, Letter Press Printing, Proof Reading and Composition, Book Binding, Basic Techniques in Photography, Development and management of small scale business enterprise, Applied Electrostatics as applicable to Photography.

The Centre, worried at the high degree of unemployment among the youths especially from the poor families, took up their cause and started conducting a number of courses for them. But here again the Centre faced the enormous burden of selecting one or two batches of 20 students out of say 1000 applications, especially for the Electronics-based courses like T.V. Servicing, Basic Electronics etc. Besides there were the problems of infrastructure and motivation. To put the record straight the Centre has not been very successful to offer the Electronics-based courses in a big way. Other courses, especially those connected with printing and publishing have been very successful and preliminary reports suggest that 50–60% of those who completed the course have found gainful employment. The requisite qualifications for admission to those courses connected with printing have been such that anyone who can read and write Bengali can apply.

(3) For the benefit of the disabled :

(a) Diploma courses in Commercial Art and Crafts for the Deaf and Dumb (in collaboration with *Silence*).

(b) Management of cerebral palsy, Education for the Developmentally young, Teaching the multiple handicapped child (with *SSEI*).

(c) Multipurpose Rehabilitation Assistance Diploma in Orthotic and Prosthetic (with *NIOH*).

Two types of courses are conducted : (a) One for their direct benefit and (b) the other for the professionals engaged in the service of the disabled. (a) The Centre conducts a one-year Diploma course in commercial arts and craft for the deaf and dumb persons. One batch of 20 students have already completed their training and received their Diploma. Approximately 20% of the successful handicapped young men and women have found some sort of employment. The Diploma has found due recognition from various recruiting agencies including the Central Government Organizations. The criterion of eligibility is also very flexible.

(b) As stated above, the Centre conducts various courses for professionals engaged in the service for the disabled.

With Spastics Society of Eastern India (SSEI), the Centre conducts courses meant for Doctors, Physio-Therapists, Occupational Therapists, Speech Therapists and Social workers.

With the National Institute of Orthopaedically Handicapped the Centre conducts courses for fresh matriculates and H.S. passed boys and girls. Many of those admitted are sponsored by the various state governments and institutions.

Approximately 200 students so far have completed these courses and many of them are expected to render fruitful services to the disabled.

(4) For Women and for Development of Social consciousness : Mother and Child Care, Population Education, Social Service—Blood donor Motivation.

The Centre is conducting these courses with a view to helping young women and men develop consciousness for development. As far as Population Education and Mother and Child Care courses are concerned, approximately 150 women and men have been trained so far. Regarding employment potential for the successful participants, the Centre is reviewing the course contents to make them more viable.

Approximately 700 participants have successfully completed the Social Service—Blood Donor Motivation course and most of them have donated blood themselves and organised Blood Donation Camps.

(5) For career development in Paramedical Sciences :

Courses : Diploma in Medical Laboratory Technology (DMLT), Diploma in Radiographic Diagonistic (DRD), Diploma in Medical Laboratory Technology for professionals—DMLT (E).

Distance Education : MLT Continuing Education Programme by Mail.

The first two of the above mentioned courses are being conducted in association with the Calcutta Medical Research Institute and the rest in collaboration with the All India Medical Laboratory Technologists Association. The DMLT and DRD courses are open to those who have passed the H.S. (Sc.) Examination and want to take up a career in this field. The courses are extremely popular and already two batches have received their Diplomas. Approximately 100 young men and women have joined the trade as professionals till now.

The evening course in MLT is meant for the professionals who are working in various laboratories but do not have any comprehensive training. This course is expected to give them a scope for improving their career. One batch of 25 students has already completed the course.

The MLT-CEP programme is unique because it is a distance education programme conducted in association with Essex Community College, U.S.A. and is the first of its kind in India. Almost 600 professionals have enrolled themselves for this programme during the last two years and it is expected to generate a lot of interest in the years to come.

(6) *For the Professionals :*

Courses : COBOL Programming, Basic Programming, Acupuncture, Foundry Technology, Instrumental Techniques in Analytical Chemistry, Training of Laboratory Assistants/Attendants, Noise and its Control, Orientation to New School English, Entreprenural Development, P. G. Diplomas in Sports Medicine and Cardiology.

The Centre Conducts the above mentioned courses for the professionals of which the two, certificate courses in Computer Languages are extremely popular. The Acupuncture course meant for the registered medical practitioners is expected to serve the cause of the under-privileged as no medicine needs to be administered in this method of treatment. Feed-back data from the participants of thise courses could not be so far collected but according to the

information received at the Centre through various sources it is gathered that the successful participants are getting due recognition in their respective fields.

Approximately 800 professionals have successfully completed these courses till now.

B. *Adult Education :*

The Centre is engaged in the programme of eradicating illiteracy in the south 24 Parganas villages near Champahati. 20 Adult Literacy Centres involving more than 600 students are being run at present. On the basis of UGC recommendation quarterly tests were conducted in the presence of officials from the University and the Panchayat bodies. Reading, Writing, Speaking and Numeracy were the four areas in which tests were taken and on the basis of the performance at the tests various grades like A.B.C. etc. were given. Now a study is being made, correlating various data like caste/occupation/income etc. with grades obtained in the test areas. Those who did not or could not appear at the test are also being asked to fill in a questionnaire sheet giving the reasons why they were absent. On the basis of these data important conclusions are expected to be arrived at.

University Employment Bureau :

As in the past the University Employment Bureau conducted to render useful assistance to the students of the University in the areas of occupational information, career guidance, higher studies, interview preparation and placement & training. During the year under review the Bureau extended its placement service to 137 employers amongst whom 60 employers visited the campus for interviews. The total number of students who were recommended through postal submission or campus interview was 4400 and the number of placements were 391.

Sports & Games

During the year under review the University Cricket Team became the Semi-finalist in the East Zone Inter University Tournament. The University team became the runners-up in Ajoy Ghosh Memorial West Bengal Intervarsity Cricket Tournament. Three players represented the East Zone Team in the Vizzy Trophy organised by the Cricket Control Board of India. Ten cricketers participated in the 1st Division League and Knock-out Tournament organised by the Cricket Association of Bengal.

The University Badminton Team (Women) had the distinction of becoming the Champion in the West Bengal Inter-University Tournament. The University Badminton Team (Women) became also the Champion in the East Zone Inter-University Tournament and secured 4th place in All India stage.

The University Rowing Team became the All India Inter-University Champion in the Skull Event.

Debashis Ganguly, Goal Keeper of the University Team represented the India Football Team (Jr.) and visited the U.S.S.R., where he was highly appreciated for his excellent performance. The FET Team won the championship in the All India Inter-Engineering Winter Meet at B.E. College. The University Team became runners-up in Prof. G. C. Sen Memorial Trophy. Seven players represented in the 1st Division League Matches and IFA Shield.

Saibal Mukherjee represented the Sr. Basket Ball Team in the National Basketball Championship. The University team became the Runners-up in the Wathoo Memorial Trophy. Three players represented in 1st Division League Tournament organised by West Bengal Basket Ball Association.

The FET Hockey Team participated in the All India Inter Engineering Winter Meet and reached the Semi Final stage. The University Team reached upto Quarter Final in the East Zone Inter-University Tournament. Five players represented in the 1st Division League Tournament organised by the West Bengal Hockey Association.

As in previous years this year also the National Service Scheme of this University has been able to generate awareness amongst the students of realities of life and to equip them with a better understanding of the problems of our countrymen face at the grass root level. This has been possible due to the design of the programmes undertaken for Normal as well as Special Camping activities which could bring enviable distinctions for the University along with the fulfilment of the objectives of making higher education relevant and responsive to our social need.

Normal NSS Activities :

(i) 32 NSS volunteers took part in a Special NSS programme to display Yogic Asanas, before a team of Foreign delegates from U.K. This was performed on 4. 4. 87 to comply with a request from the team leader.

(ii) 35 NSS volunterrs participated in a programme designed for the collection of relief materials for drought affected people of Kalahandi, Orissa from 26. 5. 87 to 31. 5. 87 under the supervision of Shri Tridib Chakraborti, NSS programme officer. They could collect clothes—450 pcs, Rice–55 kg., Pulse, wheat, Medicines and a sum of Rs. 1315.30.

(iii) On 7th June, 1987 students participated in the Seminar on "Tree Our Life", "Tree for beauty" organised by Vivekananda Nidhi.

(iv) 60 volunteers participated in a cleaning programme in and around the Open Air Theatre on 16. 8. 87.

(v) On 15. 9. 87, 45 NSS volunteers took part in a beautification programme. They cleaned the Children Park in front of the staff quarters and also the drains of the Hostels in the campus.

(vi) Campus beautification programme were also held on 7 other days during this period in order to "keep the campus clean" by more than 200 volunteers. Places included—Open Air Theatre, University pond and adjoining area of play ground, Darshan Bhavan, Radio Chemistry Building etc.

(vii) NSS volunteers rendered their service as Readers to a blind University student.

Special Camping Programme :

(1) CAMP AT RAIPUR, 24-PGS. : The camp was held at Raipur by the side of the river Ganges from 19. 6. 87 to 28. 6. 87 under the supervision of Dr. R. S. Banerjee and Shri Tridib Chakraborti, Programme Officers. Total No. of participants—31 including the two programme officers. Our volunteers dug one irrigation canal 448 ft. long, 3 ft. deep and two feet broad. Another canal was also cut out which was 250 feet long, 2 1/2 ft. and 2 ft. broad. 4000 tiles in the Dakshin Dongaria Girls' School compound were stacked with decorative layout. NSS volunteers of this camp also helped the school authority in cutting the school drains, in laying out flower garden for the school. They also repaired a village road with brickbats and brick chips.

(ii) **Camp at Falta :** One 10-day special camp was held at the village Falta, South 24-Pgs. from 8. 10. 87 to 17. 10. 87 under the guidance of the Programme Officers, Dr. R. S., Banerjee and Sri Tridib Chakrabarti. Total No. of participants were 47 : Male volunteers—29, Female–12, Local–4, Programme Officers–2.

Works done : cutting out one 100′ 'nullah' 2′ deep and 1′ wide for irrigation close to the bank of the Ganges at Falta. (2) Building up one culvert with one 10′ long concrete pipe for connecting two parts of the village Chandipur Derula ; construction of another culvert with one 6′ concrete pipe, supplied by Falta Panchayat, connecting two paths of the village Jagulia, 3 miles off Falta ; construction of a standard size play field in front of Falta Vivekananda School and construction of a wooden bridge connecting the school and the entrance of the said play field ; rearing up of 556 plants on either side of the village road planted by Falta Panchayat during July 1987.

(iii) **Camp at Roypur :** Another 10-day NSS *repeat special camp* was held at the village Roypur, South 24-Pgs. from 24. 12. 87 to 2. 1. 88 under the guidance of Dr. R. S. Banerjee, Pro-

gramme Officer. Total No. of participants–44, Male volunteers–30, Female volunteers–9, Local–4 and Programme Officer–1.

Works done : As a follow-up work the irrigational drain from the Charial Main Canal to the adjoining paddy fields cut out in the last summer 10-day special camp was made 2′ deeper and the surface of the canal was broadened.

One bamboo bridge was constructed to connect three villages near Dongaria more with the Bus road.

Another village road, heavily damaged during the last rainy season, was repaired near Dongakhali road crossing. A village road at the village Godakhali was levelled and repaired.

All India Youth Camp :

An all India Youth Camp was held at the Jamia Millia Islamia University from 24th—28th December, 1987. The Programme Co-ordinator, himself and four NSS student volunteers of our University participated in this National Youth Camp. The main objective of the camp was to provide the youth of the country with an opportunity to interact with each other, ponder over the problems of Amity and National Solidarity and consider ways and means of achieving it. The performance of the University student participants was extreamely good. Among various activities the camp had held a number of contests and generous prizes were alotted to each of the contest. The various contests were (i) Best Essay competition (ii) Declamation (iii) cultural items (iv) Best Room contest (v) (a) Best student participant (male) (b) Best student participant (female) and (vi) The Best University Trophy.

Our University team had won the second prize in the essay competition. One of our participants, Shri Ujjwal Chowdhury won the best participant (male) prize. Besides this, two other prizes were also received by the University team.

AN OUTSTANDING ACHIEVEMENT

Subhankar Banerjee, a 3rd Year Electrical Engg. student of this University developed an interest in the area of Artificial Intelligence when he was in the second year class. Artificial Intelligence is the name given by research workers in the field of computer science to the attempt at giving a brain to the machine. Subhankar prepared a paper on some aspects of A.I. and sent the same to Professor Carbonell of the Department of Computer Science, Carnegie Mellon University, U.S.A. for review. In return he has been offered direct admission to the Ph.D. Course in the above-mentioned University where such offers are made to outstanding students only even without the formal Bachelor's or Master's degree. Congratulations Subhankar !

A Brief Resume of the Paper : Knowledge-based techniques using Roger-Shank's conceptual dependence theory or Wilke's preference semantics or Carbonell's knowledge-based machine translation approach are known to be quite efficient. But the approach of this paper is somewhat different. Considering an English input sentence, the sentence is first grammatically identified by the system and mapped into a linear structure followed by the transfer phase in which two parallel processes take place, namely, the syntactic transfer in which the linear structure of the input sentence is replaced by linear structure of the corresponding output (target) language. In the final phase the correct sentence of the target language is generated from the information gathered out of the transfer phase. This conception can be extended to any language translation and not only for translating from English to Bengali.

There are certain disadvantages of the above system which has been discussed in the original paper. However, this conception is expected to open a new approach in the area of knowledge-based system.

STUDENTS' POPULATION 1987-88

Faculty/Department :

FACULTY OF ARTS

	Men	Women	Total
B.A. (Honours) :			
Bengali	13	89	102
Comparative Literature	14	92	106
Economics	56	54	110
English	22	101	123
History	20	102	122
Philosophy	10	99	109
Political Science	17	92	109
Sanskrit including Bridge Course	01	12	13
Library & Information Science	18	35	53
	171	676	847
M.A.			
Bengali	19	104	120
Comparative Literature	12	84	96
Economics	47	55	102
English	24	96	120
History	22	94	116
International Relations	16	86	102
Philosophy	08	114	122
Sanskrit	06	28	34
Library & Information Science	09	07	16
	163	665	828
M.Phil. (7 subjects)	29	40	69
M.A. (Evening) :			
Bengali	50	45	95
Economics	40	10	50
English	80	37	117
History	58	44	102
Philosophy	20	40	60
Sanskrit	23	06	29
	271	182	453
GRAND TOTAL :	634	1563	2197
No. of SC/ST Student :	—	—	107

FACULTY OF ENGINEERING & TECHNOLOGY

4-Year Degree Course in Engg. :			
Architecture (5-Year)	39	37	76
Chemical Engg.	171	35	206
Civil Engg.	310	27	337
Computer Science & Engg.	95	15	110
Electrical Engg.	273	69	342
Electronics & Telecomm. Engg.	135	15	150
Mechanical Engg.	357	—	357
Metallurgical Engg.	47	13	60
Production Engg. (4½-year)	83	01	84
Pharmacy	152	24	176
	1662	236	1898

	Men	Women	Total
3-Year B.Tech. Courses :			
Food Technology & Biochem.	41	03	44
Instrumentation & Electronics	56	02	58
5-Year Part-time (Evening) Engg. Degree Courses :			
Civil/Electrical/Mechanical Engg.	458	—	458
Master of Engineering :			
Architecture	06	04	10
Chemical Engg.	01	03	04
Civil Engg.	21	—	21
Computer Science & Engg.	06	04	10
Electrical Engg.	14	03	17
Electronics & Telecommunication Engg.	23	02	25
Mechanical Engg.	22	—	22
Metallurgical Engg.	08	01	09
Production Engg.	16	—	16
Pharmacy	19	05	24
	136	22	158
M.Tech. Courses :			
M.Tech. (FTBE)	03	—	03
M.Tech. (Biotech.)	05	04	09
	08	04	12
GRAND TOTAL :	2361	267	2628
No. of SC/ST Students :	—	—	72

FACULTY OF SCIENCE :

	Men	Women	Total
B.Sc. (Honours) :			
Chemistry	98	27	125
Geological Science	79	—	79
Mathematics	102	43	145
Physics	111	24	135
	390	94	484
M.Sc. :			
Applied Geology	62	—	62
Chemistry	26	17	43
Mathematics	72	35	107
Physics	40	21	61
	200	73	273
M.Sc. (Evening) :			
Chemistry	48	09	57
Mathematics	103	09	112
Physics	48	14	62
	199	32	231
M.Phil. (Environ. Science)	Gap Year		
GRAND TOTAL :	789	199	988
No. of SC/ST Students :	—	—	82

Total No. of Men Students	3784
Total No. of Women Students	2029
Total No. of SC/ST Students	261
Total No. of Students enrolled	5813

Faculty/Department :	Appeared			Passed		
FACULTY OF ARTS :	Men	Women	Total	Men	Women	Total
B.A. (Honours) :						
Bengali	4	30	34	—	27	31
Comparative Literature	5	32	37	5	32	37
Economics	21	22	43	13	22	35
English	5	36	41	3	35	38
History	2	34	36	2	34	36
Philosophy	—	37	37	—	36	36
Political Science	6	40	46	5	34	39
Sanskrit	—	01	01	—	01	01
Bridge Course in Sanskrit	1	04	05	—	04	04
	43 +	237 =	280	32 +	225 =	257
Bachelor of Library & Information Sc.	50 +	34 =	84	43 +	30 =	73
M.A. (including Evening Courses) :						
Bengali	28	64	92	26	54	80
Comparative Literature	3	34	37	03	30	33
Economics	28	26	54	15	24	39
English	30	53	83	17	36	53
History	14	52	64	12	36	48
International Relations	04	38	42	04	29	33
Philosophy	04	56	60	01	34	35
Sanskrit	04	25	29	—	16	16
Master of Library & Information Sc.	08	09	17	08	06	14
	123 +	357 =	460	86 +	265 =	351
FACULTY OF ENGG. AND TECHNOLOGY :						
B.E. Courses (including Evening Courses) :						
Architecture	13	9	22	13	9	22
Chemical	31	8	39	29	6	35
Civil	114	—	114	107	—	107
Computer Science & Engg.	23	6	29	23	6	29
Electrical	90	12	102	89	12	101
Electronics & Telecomm.	24	8	32	24	8	32
Mechanical	113	—	113	112	—	112
Metallurgical	10	—	10	10	—	10
Production	17	—	17	17	—	17
Pharmacy	34	9	43	33	9	42
	469 +	52 =	521	457 +	50	507
B.Tech. Courses :						
Food Tech. & Biochem.	13	2	15	13	2	15
Instrumentation & Electronics	21	—	21	21	—	21
	34 +	2 +	36	34 +	2 =	36

Master of Engineering/Tech. :	Appeared			Passed		
	Men	Women	Total	Men	Women	Total
Chemical	4	4	8	4	4	8
Civil	10	—	10	10	—	10
Computer Science & Engg.	3	—	3	3	—	3
Electrical	14	1	15	13	1	14
Electronics & Telecomm.	13	—	13	13	—	13
Mechanical	7	—	7	7	—	7
Metallurgical	7	—	7	7	—	7
Production	5	—	5	5	—	5
Pharmacy	19	2	21	19	2	21
Food Tech. & Biochemical	2	—	2	2	—	2
Biotechnology	7	1	8	7	1	8
	91 +	8 =	99	90 +	8 =	98
FACULTY OF SCIENCE :						
B.Sc. (Honours) :						
Chemistry	19	11	30	16	11	27
Geological Science	27	—	27	27	—	27
Mathematics	17	14	31	17	14	31
Physics	12	6	18	11	6	17
	75 +	31 =	106	71 +	31 =	102
M.Sc. (including Evening Courses) :						
Applied Geology	20	1	21	17	1	18
Chemistry	19	9	28	12	8	20
Mathematics	32	16	48	25	14	39
Physics	28	8	36	25	7	32
	99 +	34 =	133	79 +	30 =	109

Doctorate Degrees (Ph.D.)	Men	Women	Total
Arts	11	10	21
Science	46	17	63
Engineering	7	2	9
Pharmacy	4	1	5
	68 +	30 =	98

POPULATION OF RESEARCH FELLOWS/ ASSISTANTS, ETC.

	J.R.F.	S.R.F.	R/Associate	Pool Officer	F/R/ Fellow	Research Scientist	Teachers/ Fellow	Total
1. U.G.C.	60	19	17	..	..	4	13	113
2. C.S.I.R.	27	16	3	5	Emeritus Sc.-1	..	..	52
3. D.S.T.	11	3	1	..	..	1	..	16
4. I.C.A.R.	2	1	..	..	..	..	..	3
5. D.A.E.	1	2	..	..	..	..	..	3
6. Govt. of W. Bengal	43	20	..	..	..	..	..	63
7. I.C.S.S.R.	..	2	1	..	..	..	..	3
8. I.C.H.R.	4	2	..	..	..	..	..	6
9. I.C.P.R.	..	2	..	..	..	..	..	2
10. Govt. of India (Q.I.R.)	..	1	..	..	..	..	8	9
11. R.S.S.	5	..	..	..	..	..	..	5
12. Foreign National	3	..	..	..	..	..	..	3
13. N.C.E.R.T.	..	1	..	..	..	..	..	1
14. INSA-Scientist	1	..	..	..	..	..	..	1
15. R & D	2	..	..	..	..	..	..	2
	159	69	22	5	1	5	21	282

STUDENTS' HOSTELS

During the year under review all the seats were full. Capacity of each hostel is indicated below :

Main Hostel :

A1 Block	..	176
A2 Block	..	150
B Block	..	83
C + D Blocks	..	155
P.G. (Old)	..	90
P.G.N. (New)	..	38
New Block	..	55
Women's Hostel	..	211

Due to dearth of accommodation and heavy demand for seats some 20/25 students continued staying as guests of the regular boarders in the hope that when final year students would pass out and leave the hostel seats, they would be allotted the vacant seats.

In the Main Hostel three foreign students—one from Sudan and two from Bangladesh stayed during the year.

Photographic Club :

A number of short photographic rambles were arranged where large number of club members joined with great enthuasiasm. Members of the club participated in different National and International Salon. Sri Parthapratim Sen, a senior member secured 2nd prize in NIKON PHOTOCONTEST INTERNATIONAL 1987-88.

Training classes were held regularly after the enrolment of new members, number of which was restricted to 250. Altogether seventeen theoretical classes followed by practical training were held with assistance of Sri Badal Ch. Dutta. A number of photographic rambles were organised within the City and outskirts. Slide shows were also arranged.

The photographic club undertakse all types of photographic job for the University. The coverage of annual Convocation and coverage of different students' activities and research work are done in concessional rate.

Colour printing is now done with 'Durst' colour enlarger. Air conditioner installed a few months back is giving good service for efficient performance of photographic work.

The club's XVI All India Salon of photography, held in February 1988 at Academy of Fine Arts was unique for record number of entries and quality of photograph and slides. The selectors were Sri Subrata Mitra, Sri Gautam Ghosh and Santosh Rajgharia for the categories both 'open' and 'Students'.

Geeti Samsad (Music Club) :

On 28th November 1987 Geeti Samsad performed a musical fest on Logical sequence of Modern Song at Gandhi Bhaban.

On 24th and 30th December on the occasion of Annual Convocation and Prof. G. C. Sen Memorial Function respectively. Musical performances were done by University Choir. On 26th December, the Samsad presented a musical fest on the occasion of Benoy Sarkar birth anniversary.

In the function of FET Students' Union the Samsad presented a series of hit songs of which Singer and Music Director was Hemanta Kumar Mukherjee. Sri Mukherjee who was an invitee in the function acclaimed the idea.

On 12th February at the Cultural Function of Main Hostel residents (PUNASCHA) the Geeti Samsad presented the opening Song which made the Samsad more popular.

Members of Samsad mourned the sudden and untimely death of Sm. Mita Choudhury, the beloved Music Director of Geeti Samsad on 19th November 1987 in the condolence meeting presided over by the Vice-Chancellor.

Mountaineering & Hiking Club :

The activities of the Club during the year are given hereunder :

(a) Rock climbing Course : The Course was held with great success from 24th–29th January 1988 at the MATHA BURU HILLS. 26 Basic Trainees and 3 Intermediate Trainees participated in the Course. Sri S. K. Chakrabarty, Director of Youth Welfare and the Secretary of the club participated as Basic Trainee.

(b) Trek to Sandakphu : The club under the leadership of Sri Avik Roy with a team of 8 members trecked from Manebhanjoy–Sandakphu–Phalut–Singalila–Deutam between September 27 and October 8, 1987.

(c) Trek to Dzongri : Under the leadership of Sri Amit Bandopadhyay trecking was held between October 10–21, 1987 with 10 members through the route—Yukson-Bakhim

shoka-Jamlinkhang-Chanrikhang-Dzongri-Shoka-Bakhim–Yuksom, height of which varied from 6000 ft. to 15000 ft.

(d) Treck to Annapurna Base Camp : with a team of six members Trecking to Base Camp was held between Sept. 27 and Oct. 13, 1987 under the leadership of Sri Kamal Sarkhel.

(e) Expedition to the Mulkill group of Peaks :
During June–July 1987 the expedition was held under the leadership of Sri Amitava Basu Sarkar with great success. The team reached the summits of M-1-19032 ft. and M-10 19437 ft.

(f) Basic Mountaineering Course : Nambam Deben underewent Basic Mountaineering Training of WHMI (Manali) in October 1987 and secured Grade A in the test and was recommended for Advance Mountaineering Course.

(g) Two representatives participated in the Orientation Course held in March 1988.

JADAVPUR UNIVERSITY EMPLOYEES CO-OPERATIVE SOCIETY LTD.

During the year under review the Society had 1366 members with share capital of Rs. 7,85,480.00. During the year members were given loan to the tune of Rs. 43,84,835.00. Net Profit earned was Rs. 28,634.00. Closing bank balance was Rs. 2,67,714.00.

FACULTY CLUB & GUEST HOUSE

The Faculty Club was open for 180 days during the year and about 300 in average faculty members enjoyed the Canteen facilities each day. During the year 1987-88 about 5000 participants of different Seminars had their Lunch/Dinner in the Faculty Club catered by caterer of the club or outside caterers.

About 100 guests were accommodated in the Guest House and the willing guests were provided with lunch/dinner/breakfast by the caterer.

A. CAPITAL A/c.

		Rs. (in lakhs)
Receipt :		
(a) Own Generation from Testing / Consultation fees	..	3.00
(b) Grants from U.G.C. / G.O.I.	..	206.40
(c) Grants from U.G.C. / G.O.I. on Research Project	..	328.67
(d) Grants from State Govt.	..	30.52
		568.59
Expenditure :		
(a) Building	..	2.36
(b) Equipment / Books / Furniture	..	75.60
(c) Transfer to Research Project	..	328.67
		406.63
Surplus		161.96

B. REVENUE A/c.

		Rs. (in lakhs)
Receipt :		
(a) Own resources	..	31.09
(b) Grants from (U.G.C. / G.O.I.)	..	95.05
(c) Grants from State Govt.	..	701.00
		827.14
Expenditure :		
(a) General Administration	..	314.27
(b) Hostels	..	16.94
(c) Faculty of Engineering	..	226.50
(d) Faculty of Science	..	112.08
(e) Faculty of Arts	..	88.58
(f) Part-time	..	26.22
(g) Development Scheme	..	13.96
(h) Research / Scholarship / Studentship	..	85.48
		884.03
Deficit for the year	..	56.89

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