

B.E. ELECTRICAL ENGINEERING (PART TIME) SECOND YEAR SECOND SEMESTER 2018(1st/ 2nd Semester/Repeat/Supplementary/Annual/Bi-Annual)**SUBJECT: - SEQUENTIAL SYSTEMS AND MICROPROCESSOR**

Time: Three hours

Full Marks 100
(50 marks for each part)

Use a separate Answer-Script for each part

No. of Questions	PART I	Marks
	Answer any three Questions Two marks are for neat and systematic answers	
Q1.	a) Enumerate different advantages of programmable logic over a relay logic based system. b) A system is described by, $Y = A.(B+C) + A.(B+AB)$ i) Simplify the system using Boolean Algebra and implement through ladder diagram. ii) Implement the simplified expression through ladder diagram.	4 8+4
Q2.	a) Draw the block diagram of a Mealy machine and describe the functions of each block. Enumerate the differences between Moore and Mealy Machine. b) Draw and explain the block diagram of a 4-bit shift right register using D-FF.	8 8
Q3.	a) Explain the difference between the excitation table and truth table? With help of truth tables develop the excitation tables of J-K and S-R FFs. b) What is state diagram? Explain different symbols that are used to draw state diagram of a sequential system.	4+6 6
Q4.	a) Define Propagation delay time, Set-up time time and Hold time in the context of flipflop operation. b) A 1024X8 bit Read and Write Memory (RWM) is to be designed for using 512X4 bit memory chips. Sketch the connection diagram for the designed memory chip and the possible page address.	8 8

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PART – II

Answer any three questions.

Two marks are for neatness and well organized answer.

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| 6.(a) | What are the various registers of 8085? Discuss their functions. | 4 |
| (b) | What are the various status flags provided in 8085? Discuss their roles. | 4 |
| (c) | Draw and explain the timing diagram for memory read operation. | 8 |
| 7.(a) | Discuss various types of operating modes of Intel 8085 with suitable examples. | 6 |
| (b) | Explain what operation is performed when the following instructions are executed:
DAD rp, LDA addr, LHLD addr, STA addr and SHLD addr | 10 |
| 8.(a) | Write an assembly level language program for Intel 8085 CPU based microprocessor to add two 8-bit numbers which may generate 8-bit number or more. | 8 |
| (b) | Write an assembly level language program for Intel 8085 CPU based microprocessor to add two 16-bit numbers which may generate 16-bit number or more. | 8 |
| 9.(a) | Write an assembly level language program for Intel 8085 CPU based microprocessor to arrange a series of numbers in ascending order. | 8 |
| (b) | Write an assembly level language program for Intel 8085 CPU based microprocessor for the division of two 8-bit numbers. | 8 |
| 10.(a) | Discuss how to determine the control word for 8255. | 6 |
| (b) | Write an assembly level language program to generate all the pins of Port A of 8255. | 10 |