Bachelor of Instrumentation & Electronics Engineering Examination, 2022

(4th Year, 2nd Semester)

Industrial Management

Time: Four Hours | Full Marks: 70

Different parts of the same question should be answered together

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1. Answer any two from (a), (b) and (c) in this block **2 x 7 = 14**

(a) Classify and summarise functions of management. **7**

(b) Draw the diagram of MBO process. What are the advantages of MBO?. **5 + 2**

(c)

Year	Expenditure (Rs. in Crore)
2016	25
2017	30
2018	35
2019	45
2020	60

Project the business expenditure on new plant equipment for the year 2022 by trend projection method. **7**

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2. Answer any two from (a), (b) and (c) in this block **2 x 10 = 20**

(a) From the following data draw out a network diagram, calculate the critical path by activity on arrow method, find the project completion time. How much is the float time of activity C ? **5 + 2 + 2 + 1**

Activity	Immediate Predecessor(s)	Activity time (weeks)
A	–	4
B	–	3
C	–	25
D	A	30
E	A,B	4
F	C	15
G	C, E	8
H	C, E	6
I	D, G	3
J	F, H	3

PTO

(b) Obtain the optimal strategies for both the players and the value of the game for two person zero-sum game whose payoff matrix is given as follows (apply sub-game method only): **10**

		Player B	
		B1	B2
Player A	A1	-6	7
	A2	4	-5
	A3	-1	-2
	A4	-2	5
	A5	7	-6

(c) A marketing manager has five salesmen and five sales districts. Considering the capabilities of the salesmen and nature of the districts, the marketing manager estimates that the sales per month (in hundred rupees) for each salesman in each district would be as follows:

		Districts				
		A	B	C	D	E
Salesmen	1	32	38	40	28	40
	2	40	24	28	21	36
	3	41	27	33	30	37
	4	22	38	41	36	36
	5	29	33	40	35	39

Solve the assignment of salesmen to districts that will result in maximum sales. Apply Hungarian method only. **10**

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3. Answer any two from (a), (b) and (c) in this block **2 x 7 = 14**

(a) What are the ways to improve reliability? Explain Bath Tub curve. **2 + 5**

(b) Describe preventive maintenance'. **7**

(c) Assume we have an automobile that is operating in its mature phase and has the following failure history:

Time to failure (hours): 100 800 1280 2600

What reliability can be expected from the automobile after 40, 200, 1000, and 5000 hours? **7**

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4. Answer any one from (a) and (b) in this block. **1 x 11 = 11**

(a) Draw the building blocks under JIT manufacturing. What are the requirements of JIT? **4 + 7**

(b) What are the assumptions of EOQ model? Show the diagram of EOQ model without back-order and without quantity discount. Derive this model without back-order and without quantity discount by using calculus.

2 + 2 + 7

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5. Answer any one from (a) and (b) in this block **1 x 11 = 11**

(a) Define motivation. Why is motivation important? Explain Vroom's Expectancy theory. **1 + 5 + 5**

(b) What is 'work study'? Describe benefits of 'work study'. Illustrate the relationship of 'time and motion study' to 'work study' with the help of a diagram. **1 + 5 + 5**