

Bachelor of Instrumentation & Electronics Engineering Examination, 2019

(4th Year, 2nd Semester)

Industrial Management

Time: Three Hours

Full Marks: 100

Different parts of the same question should be answered together

1. **Answer any two from (a), (b) and (c) in this block** **2 x 10 = 20**
- (a) Present a diagram of a production management process. Enumerate various types of production system. Explain 'Batch Production' **3 + 2 + 5**
- (b) Differentiate theory X from theory Y. Explain functions of top level management. **5 + 5**
- (c) What are the assumptions of break-even analysis? Derive break-even point (QBEP). **5 + 5**

2. **Answer any two from (a), (b) and (c) in this block** **2 x 15 = 30**

- (a) The owner of a chain of fast food restaurants is considering a new computer system for accounting and inventory control. A computer company sent the following set of information about the computer system installation:

Activity	Description	Immediate Predecessor	Times (days)		
			Optimistic	Most Likely	Pessimistic
A	Select the computer model	-	4	6	8
B	Design input/output system	A	5	7	15
C	Design monitoring systems	A	4	8	12
D	Assemble computer hardware	B	15	20	25
E	Develop the main programmes	B	10	18	26
F	Develop input/output routines	C	8	9	16
G	Create database	E	4	8	12
H	Install the system	D, F	1	2	3
I	Test and implement	G, H	5	7	15

- i) Construct the network diagram of the project, and show expected early start time, early finish time, late start time and late finish time of each activity on the diagram. ii) Determine the critical path and compute the expected completion time of the project. iii) Determine the probability of completing the project in 55 days (consult Appendix - A). **6 + 6 + 3**
- (b) A dairy firm has three plants located in a state. The daily milk production at each plant is as follows:

Plant 1 : 6 million litres, Plant 2 : 1 million litre, and Plant 3 : 10 million litres

Each day, the firm must fulfil the need of its four distribution centres. The minimum requirement of each centre is as follows:

Distribution centre 1 : 7 million litres; Distribution centre 2: 5 million litres,
 Distribution centre 3 : 3 million litres, Distribution centre 4: 2 million litres

Cost (in hundreds of rupees) of shipping one million litres from each plant to each distribution centre is given below:

		Distribution Centre			
		D1	D2	D3	D4
Plant	P1	4	6	22	14
	P2	2	0	12	2
	P3	10	16	30	18

Find the initial basic solution for the given problem by using the following methods:

(i) Least cost method, (ii) Vogel's approximation method

6 + 9

(b) Solve the following game by graphical method:

		Player B			
		-5	2	-3	5
Player A	8	7	5	-4	

15

3. Answer any two from (a), (b) and (c) in this block

2 x 10 = 20

(a) Explain three aspects of quality. What are the steps in constructing a control chart?

6 + 4

(b) What are the reasons for maintenance? State the attributes of preventive maintenance.

5 + 5

(c) Explain the causes of variation in a control chart. Provide a brief discussion on cost of unreliability.

5 + 5

4. Answer any one from (a) and (b) in this block.

1 x 15 = 15

(a) What do you understand by JIT? Present a diagram of manufacturing building blocks of JIT. State advantages and disadvantages of JIT.

2 + 5 + 8

(b) The annual demand of a product is 10,000 units. Each unit costs Rs. 100; if the orders are placed in quantities below 200 units. For orders of 200 or above, however, the price is Rs. 95. The annual inventory holding cost is 10% of the value of the item and the ordering cost is Rs. 5 per order. Find the economic lot size (EOQ) by analysing the above set of information.

15

5. Answer any one from (a) and (b) in this block

1 x 15 = 15

- (a) Explain Herzberg's two factor theory of motivation. Present your understanding on Vroom's expectancy theory. 6 + 9
- (b) Why is work study needed? State objectives of method study. Present process chart symbols with explanations. 5 + 4 + 6

