

Time : 3 hrs

Max Mark:100

ANSWER ALL QUESTIONS

Part – A (10 x 2 = 20 Mark)

1. What is ergonomics?
2. State the steps involved in processing the order.
3. How the transportation problems can be solved?
4. Define: Gantt chart.
5. Name the types of inventory.
6. What is Lead time?
7. Write down the uses of CRP.
8. What is aggregate planning?
9. Why do we need dummy activity?
10. What do you mean by CPM and PERT

Part – B (5 x 16 = 80 Mark)

11. A dealer supplies the below information with regard to a product dealt in by him:

Annual Demand	: 10,000 units
Ordering cost	: Rs.10 per order
Inventory carrying cost	: 20% of the value of inventory per year
Price	: Rs. 20 per unit

The dealer is considering the possibility of allowing some back-order (stock-out) to occur. He has estimated that the annual cost of back ordering will be 25% of the value of inventory.

- A. What should be the optimum number of units of the product he should buy in one lot?
 - B. What quantity of the product should be allowed to back ordered, if any?
 - C. What is the maximum Inventory at any time of the year?
 - D. Would you recommend for back ordering? If so what would be the annual cost saving by adopting the policy of back ordering.
12. a) (i) Discuss in detail about the organisation structure.(8)
(ii) Explain in detail about the various factors affecting layout of the factory (8).

OR

- b). Describe the significance of worker safety in a ink making plant and suggest the safe working environment.

13. a) Solve the following unbalanced assignment problem and find the best assignment

	R1	R2	R3	R4
C1	9	14	19	15
C2	7	17	20	19
C3	9	18	21	18
C4	10	12	18	19
C5	10	15	21	16

OR

b) A manufacturer of jeans is interested in developing an advertising campaign that will reach four different age groups. Advertising campaigns can be conducted through TV, Radio and Magazines. The below table gives estimated cost in rupees per exposure.

Media	Age Group				Max. exposure Millions
	13-18	19-25	26-35	Above 36	
TV	12	10	10	10	40
Radio	10	9	12	10	30
Magazine	14	12	9	12	20
Min. Exposure Millions	30	25	15	10	90

A. Find the optimal solution with MODI method (8)

B. Solve the problem if the policy is to provide at least 4 million exposures through TV in the 13-18 age and at least 8 millions exposure through TV in the 19-25 age group.(8)

14. a) Draw a network diagram and find the critical path for the following project data. Also find the completion of project is insisted within 18 weeks the activities can be crashed and additional cost incurred.

Activity	Preceding Activity	Time (in weeks)		Cost (in Rs)	
		Normal	Crash	Normal	Crash
A	----	3	2	18000	19000
B	----	8	6	600	1000
C	B	6	4	10000	12000
D	B	5	2	4000	10000
E	A	13	10	3000	9000
F	A	4	4	15000	15000
G	F	2	1	1200	1400
H	C,E,G	6	4	3500	4500
I	F	2	1	7000	8000

OR

b) A project has the following data find the solutions for the below listed questions.

Activity	Preceding Activity	Time (in weeks)		
		Optimistic	Most likely	Pessimistic
A	---	2	4	6
B	---	6	6	6
C	---	6	12	24
D	A	2	5	8
E	A	11	14	23
F	B,D	8	10	12
G	B,D	3	6	9
H	C,F	9	15	27
I	E	4	10	16

- A. Draw PERT network and find critical activities (4)
- B. Table the expected project completion time and its variance(3)
- C. What is the probability of completing the project one week before? (4)
- D. What is the probability of paying penalty of Rs.45,000, if imposed penalty of Rs.15000/- per week is in the agreement.(5)

15. a) Explain in detail about the concepts and applications about Material Requirement and Planning.

OR

b) Write in detail about the concepts and applications of CRP and ERP.