

(b) Solve following assignment problem:

07

Worker		Jobs			
		A	B	C	D
	1	45	40	51	67
	2	57	42	63	55
	3	49	52	48	64
	4	41	45	60	55

OR

Q.3 (a) Find initial feasible solution for given transportation problem using VAM:

07

Plant		Distribution Centre				Supply
		D ₁	D ₂	D ₃	D ₄	
	P ₁	20	30	110	70	
	P ₂	10	0	60	10	
	P ₃	50	80	150	90	
Demand		7	5	3	2	

(b) Define: Queue & Discuss dynamic queue discipline in detail.

07

Q.4 (a) Draw a network diagrams for the following:

07

i)

Activity	Predecessor Activity
A	--
B	--
C	--
D	A
E	B
F	B, C
G	D, E, F
H	E, F

ii)

Activity	Predecessor Activity
A	--
B	--
C	--
D	A
E	A, B
F	A, B, C
G	D, E, F
H	F

(b) A manufacturer has to supply his customer with 600 units of his product per year. Shortages are not allowed and the storage cost amounts to Rs. 0.60 per unit per year. The set-up cost per run is Rs. 80. Find the optimum run size, the minimum average yearly cost and optimum order cycle time.

07

OR

Q.4 (a) A pipeline is due for repairs. The repair would cost Rs. 10,000 and would last for three years. Alternatively, a new pipeline can be laid at a cost of Rs. 30,000, which would last for 10 years. Assuming the cost of capital to be 10% and ignore salvage value, which alternative should be adopted?

07

(b) Use the graphical method to minimize the time needed to process the following jobs on the machines shown, i.e. for each machine find the job that should be done first. Also, calculate the total elapsed time to complete both jobs.

07

Job 1		Machines				
	Sequence:	A	B	C	D	E
	Time(Hrs.)	3	4	2	6	2

Job 2		Machines				
	Sequence:	B	C	A	D	E
	Time(Hrs.)	5	4	3	2	6

- Q.5 (a)** Discuss errors and dummies in network with suitable example. **07**
- (b)** What is rim condition? Write & explain general mathematical model of transportation problem. **07**

OR

- Q.5 (a)** An aircraft company uses rivets at a constant rate of 2500 per year. Each unit costs Rs. 30. The company personnel estimate that it costs Rs. 130 to place an order, and that the carrying cost of inventory is 10% per year. How many numbers of orders be placed for the time period? Determine the optimum size of each order. **07**
- (b)** Solve given transportation problem using LCM: **07**

		Destination				Supply
		D ₁	D ₂	D ₃	D ₄	
Source	S ₁	11	13	17	14	250
	S ₂	16	18	14	10	300
	S ₃	21	24	13	10	400
Demand		200	225	275	250	
