

INSTRUCTION: Attempt ANY THREE questions from the following:

Q1 Describe the techniques and tools of operation research.

Q2. What are the rules for determining the saddle point? Solve the following game

- 1** Player A and B toss a dice. If even number occurs on both dice, player A gets 8 Rs. & if odd numbers occur on both dice player A gets 6 Rs. If one gets odd and other gets even, player B gets 5 Rs. Determine the best strategy for each player.

2

		Player B		
		9	8	-7
Player A	3	-6	4	
	6	7	-7	

Q3. A company manufacture two kind of machine each requiring different manufacturing technique. The deluxe machine requires 18 hrs of Labour, 9 hrs of testing, yields a profit of Rs. 400. The second machine requires 3 hrs of Labour, 4 hrs of testing and yields profit of Rs. 200. There are 800 hrs of Labour and 600 hrs of testing available each month. A marketing forecasts has shown the monthly demand for the second machine to be no more than 150. The management wants to know the numbers of each model to produced monthly that will maximize the total profit. Formulate and solve this as a linear programming problem graphically. (Draw the graph in answer sheet only)

Q4. A project has the following time schedule.

Activity	Duration
1-2	2
1-3	5
2-4	4
3-4	3
3-5	5
4-6	6
5-7	2
6-7	4

NG4-2

Required:

- 1) Draw the Diagram.
- 2) Identify the critical path & find the total project duration.
- 3) Determine EFT, EST, LFT, LST and Total float.

Q5. Solve the following transportation problem for minimizing the total cost. If possible give alternate solution also.

Factory	Sales Depot			Availability
	S1	S2	S3	
F1	7	10	5	90
F2	12	9	4	50
F3	7	3	11	80
F4	9	5	7	60
Requirement	120	100	110	

Q6. Solve the following assignment problem. The data regarding production on different machines are given in the following table. Explain the Hungarian Method in detail.

Operator	Machines			
	A	B	C	D
1	15	10	12	13
2	16	9	14	14
3	13	9	14	12
4	12	10	11	9
5	13	14	12	10