

22. A small maintenance project consists of the following jobs whose precedence relationships is given below.

Job	1-2	1-3	2-3	2-5	3-4	3-6	4-5	4-6	5-6	6-7
Duration (days)	15	15	3	5	8	12	1	14	3	14

- (a) Draw an arrow diagram representing the project
- (b) Find the total float for each activity
- (c) Find the critical path and the total project duration
23. What is service discipline? Describe some forms of common service discipline and illustrate with examples.
24. Solve the following 2×3 game graphically

	Player B		
Player A	1	3	11
	8	5	2

II BBA \rightarrow Operation Research

APRIL 2022

72246/BB34A

Time : Three hours

Maximum : 75 marks

PART A — (10 × 2 = 20 marks)

Answer any TEN questions.

1. What are the main Characteristics of operation research?
2. Write the mathematical form of linear programming problem.
3. When do you recommend Big-M method?
4. Define transportation problem.
5. What is the objective of assignment problem?
6. What is work break down analysis?
7. Distinguish between float and slack.
8. What is meant by critical path?
9. List the elements of queuing system.
10. What are the queue disciplines?
11. Define decision tree.
12. What is saddle point?

PART B — (5 × 5 = 25 marks)

Answer any FIVE questions.

13. What are the advantages and disadvantages of operation research models?
14. Describe the graphical method to solve linear programming problem.
15. Determine an initial basic feasible solution to the following transportation problem using north west corner rule.

	D ₁	D ₂	D ₃	D ₄	Supply
O ₁	6	4	1	5	14
O ₂	8	9	2	7	16
O ₃	4	3	6	2	5
Required	6	10	15	4	35

16. What is meant by unbalance assignment problem? How to resolve it? Give an example.
17. Construct a network for the project whose activities and their precedence relationships are as given below

Activities:	A	B	C	D	E	F	G	H	I
Immediate predecessor	-	A	A	-	D	B,C,E	F	D	G,H

18. Explain the application aspects of queueing theory in business.
19. Explain two person zero sum game and give its uses.

PART C — (3 × 10 = 30 marks)

Answer any THREE questions.

20. Discuss the scope of operations research.
21. A company has five jobs to be done on five machines. And job can be done on any machine. The cost of doing the jobs in different machines are given below. Assign the jobs for different machines so as to minimize the total cost.

Jobs	Machines				
	A	B	C	D	E
I	13	8	16	18	19
II	9	15	24	9	12
III	12	9	4	4	4
IV	6	12	10	8	13
V	15	17	18	12	20