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(20517)

Roll No.

BBA-IV Sem.

18060

B. B. A. Examination, May 2017

Operation Research

BBA-406

(New)

Time : Three Hours]

[Maximum Marks : 75

Note : Attempt questions from all Sections as per instructions. Calculator may be used.

Section-A

(Very Short Answer Questions)

Attempt all the *five* questions. Each question carries 3 marks. Very short answer is required not exceeding 75 words. $3 \times 5 = 15$

1. Explain three characteristics of Operation Research. 3

(2)

2. Give two advantages of linear programming. 3
3. What do you understand by MODI method? 3
4. Define PERT. 3
5. Define North West Corner Rule. 3

Section-B

(Short Answer Questions)

Attempt any *two* questions out of the following three questions. Each question carries $7\frac{1}{2}$ marks. Short answer is required not exceeding 200 words.

$7\frac{1}{2} \times 2 = 15$

6. Discuss the significance and scope of OR in modern management. $7\frac{1}{2}$
7. A firm manufactures two items. It purchases casting which are then machined, bored and polished. Castings for items 'A' and 'B' cost ₹ 2 and ₹ 3 respectively and are sold at ₹ 5 and ₹ 6 each respectively. Running costs of the three machines are ₹ 20, ₹ 14 and ₹ 17.50 per hour respectively. Capacities of the machines are : $7\frac{1}{2}$

18060

(3)

	Part-A	Part-B
Machining capacity	25/hr	40/hr
Boring capacity	28/hr	35/hr
Polishing capacity	35/hr	25/hr

Formulate the L.P. model to determine the product mix that maximizes the profit.

8. Discuss in detail the role of linear programming in managerial decision-making. 7½

Section-C

(Detailed Answer Questions)

Attempt any *three* questions out of the following five questions. Each question carries 15 marks. Answer is required in detail. 15×3=45

9. Maximize $Z = 80x_1 + 120x_2$ 15
- Subject to $x_1 + x_2 \leq 9,$
- $20x_1 + 50x_2 \leq 360,$
- $x_1 \geq 2,$
- $x_2 \geq 3,$
- $x_1, x_2 \geq 0.$

(4)

10. Explain Simplex method of solving linear programming problem. 15
11. Explain the following in the context of Transportation problem: 15
- (i) Stepping stone method
- (ii) Degenerate transportation problems
- (iii) Modified distribution method.
12. Solve the transportation problem. The matrix shows the cost of transportation: 15

Table

From	To			Supply
	1	2	3	
A	10	18	9	100
B	4	3	11	200
C	6	9	15	400
Demand	250	150	300	700

Total

13. What do you understand by decision tree analysis? What is node in a decision tree? What is backward pass? 15