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(20518)

Roll No.....

BBA-IV Sem.

18060

B.B.A. Examination, May-2018

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)**

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

1. What is Operation Research?
2. What do you mean by MODI method?
3. Explain North West Corner Rule of Transportation Problem.

P.T.O.

4. Explain PERT.
5. Explain CPM.

**Section - B**

**(Short Answer Questions)**

Note : 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 Nature, Definition & Characteristics of Operations Research.
7. Consider the problem of assigning 5 jobs to 5 persons. The costs are given as below :

Persons	Jobs				
	1	2	3	4	5
A	8	4	2	6	1
B	0	9	5	5	4
C	3	8	9	2	6
D	4	3	1	0	3
E	9	5	8	9	5

8. Discuss the Applications areas of Linear Programming.

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### Section-C

#### (Detailed Answer Questions)

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

9. Maximise  $Z = 28x_1 + 30x_2$   
Subject to  $6x_1 + 3x_2 \leq 18$   
 $3x_1 + x_2 \leq 8$   
 $4x_1 + 5x_2 \leq 30$   
 $x_1, x_2 \geq 0$

10. Find an optimal solution to the following transportation problem :

Sources	Destination			Supply
	X	Y	Z	
A	2	7	4	50
B	3	3	7	70
C	5	4	1	80
D	1	6	2	140
Demand	70	90	180	340

11. What do you mean by unbalanced transportation problem? Explain how to convert the unbalanced transportation problem in to a balanced transportation problem.
12. Explain clearly the difference between the following :
- (i) Pay-off and Opportunity Loss
  - (ii) Expected Monetary Value and Expected Opportunity Loss.
  - (iii) Maximin and Maximax decision-rules.
13. Discuss any two methods of finding initial solution of a transportation problem and two areas of application for them.