BBA-406(N)

BBA (Semester-IV) Examination-2014

(New Course)

Paper: Sixth

Operations Research

Time: Three Hours]   [Maximum Marks: 70

Note: Attempt all questions. All questions carry equal marks.

1.   Discuss the significance and scope of operation research in modern management.

Or

"Operation research advocates system approach and is concerned with optimization". Discuss in brief.

	Plant X	Plant Y	Plant Z
	8	4	8
16	24	16	
8	16	24	
24	16	24	
Project			

4

Describe the rules for drawing the network diagram with suitable illustration. Also discuss the Fulkerson's rule.

5.   Describe the steps in solving assignment problems using Hungarian Method.

Or

Write short notes on:

(a)   C.P.M

(b)   Event

(c)   Activity

(d)   AOA

(e)   AON

Activity	Predecessor		
1-2	-		
1-3	1-2	1-2 & 1-3	
1-4	1-3	1-4	
2-5	1-4	2-5	
3-6	1-4	3-6	
4-6	2-5	4-6	
5-7	3-6	5-7	
6-7	4-6 & 1-4	6-7	

2. Solve the Linear programming problem:

Maximize $Z = 3x_1 + 5x_2 + 4x_3$

Subject to constraints,

$$2x_1 + 3x_2 \leq 8$$
$$2x_2 + 5x_3 \leq 10$$
$$3x_1 + 2x_2 + 4x_3 \leq 15$$

and $x_1, x_2, x_3 \geq 0$.

Or

Solve Linear programming problem Graphically.

Maximize $P = 42x + 18y$

Subject to, $5x + 3y \leq 75$

$$x + y \leq 20$$
$$42x + 18y \geq 300$$

and $x \geq 0, y \geq 0$.

3. Solve the following transportation problem and test its optimality:

	Project A	Project B	Project C	Plant capacity
Plant X	4	8	8	56
Plant Y	16	24	16	82
Plant Z	8	16	24	77
Requirement	72	92	41	215/205

4. Solve the following imbalanced assignment problem of minimizing total time for doing all the jobs:

Operations	Jobs				
Operations	1	2	3	4	5
1	6	2	5	2	6
2	2	5	8	7	7
3	7	8	6	9	8
4	6	2	3	4	5
5	9	3	8	9	7
6	4	7	4	6	8

Or

Draw the network for the following project and compute the earliest and latest time for each event and also find critical path:

Activity	Immediate predecessor	Time (days)
1-2	-	5
1-3	-	4
2-4	1-2	6
3-4	1-3	1
4-5	2-4 & 3-4	2
4-6	2-4 & 3-4	7
5-7	4-5	8
6-7	4-6	4
7-8	6-7 & 5-7	3