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3103E017

Candidate's Seat No :_____

BA.,BBA.,B.Com.,LL.B. (Sem.-III) (Rept.) Examination

IL BBA 202

O. R. & Q. T.

March-2017

Time : 3 Hours] **[Max. Marks : 70**

Instructions:

- **Do not write anything on this paper except for your Roll Number.**
- **Write any five questions.**

Question 1:

A. Explain the development phases of operational research. (7)
B. Explain the advantages and disadvantages of O.R. (7)

OR

A. Explain assumption and limitations of linear programming. (7)
B. Explain characteristics of PERT and CPM method. (7)

Question 2:

Using Graphical method solve the following L.P.P. (14)

Maximize $Z = 5x + 7y$

Subject to:

$X + Y \leq 70$

$X + 2Y \leq 100$

$2X + y \leq 120$

$X, Y \geq 0$

OR

A. Explain the methods of solving transportation problem. (7)
B. Explain the difference between PERT Method and CPM method. (7)

Question 3:

A. O1, O2, O3 are three production centre of a refrigerator company. Their supplies are 10, 9 and 11 respectively. The demand of four sales depots A, B, C and D are respectively 10, 7, 8 and 5. The transportation cost matrix for sending refrigerators from different production center to different sales centre is given below.

P. T. O.

Sale center

	A	B	C	D
O1	20	18	22	13
O2	10	20	17	24
O3	19	17	18	12

Find an optimal solution of this transportation problem. (7)

B. Solve the following transportation problem by vogel's method and Find the total cost. (7)

	Destinations				
origins	D1	D2	D3	D4	Supply
O1	1	2	1	4	30
O2	3	3	2	1	50
O3	4	2	5	9	20
Requirement	20	40	30	10	100

OR

A. Solve the following assignment problem of minimizing total cost of doing all the jobs. (7)

	Jobs			
Operators	1	2	3	4
1	7	3	5	2
2	8	4	5	3
3	8	6	6	6
4	9	8	8	10
5	10	9	10	12

B. Solve graphically the problem of Game Theory. (7)

	Player B	
	3	5
Player A	4	1
	2	2

Question 4:

A. Explain Principal of dominance. (7)

B. Explain pure strategy & Mixed Strategy. (7)

OR

A. In a project, for an activity the optimistic time is 10 days, the pessimistic time is 20 days and the most likely time is 13 days. Find

the expected time of the activity. Also state which method is used here – PERT or CPM. (7)

B. A project is made up of six activities. The relationships of the activities are given below. Prepare a network and determine critical path and its duration. (7)

Activity	A	B	C	D	E	F
Predecessor	-	A	A	B	C	E
Duration	2	3	4	6	2	8

Question 5:

1. The scientific method in O.R. study generally involves

- A. Judgment Phase
- B. Research Phase
- C. Action Phase
- D. All of the given

2. Which of the following is not a major requirement of a Linear Programming Problem?

- A. There must be alternative course of action among which to decide
- B. An objective for the firm must exist
- C. The problem must be of maximization type
- D. Resources must be limited

3. Which of the following assertations is true of an optimal solution to an Linear Programming Problem?

- A. Every LP has an optimal solution
- B. The optimal solution always occur at extreme points
- C. If an optimal solution exists, there will always be atleast one at a corner
- D. All of the given

4. The North West Corner rule

- A. Is used to find an initial feasible solution
- B. Is used to find an optimal solution
- C. Is based on the concept of minimizing opportunity cost
- D. None of the given

P.T.O

5. In Vogel's Approximation Method; the opportunity cost associated with a row is determined by

- A. The difference between the smallest cost and the next smallest cost in the row
- B. The difference between the smallest unused cost and the next smallest unused cost in the row
- C. The difference between the smallest cost and next smallest unused cost in the row
- D. None of the given

6. In a departmental store customers arrive at a rate of 20 customers per hour. the average number of customers that can be handled by cashier is 24 per hour. What is arrival rate in this problem?

- A. 20
- B. 3
- C. 24
- D. 10

7. In a departmental store customers arrive at a rate of 20 customers per hour. the average number of customers that can be handled by cashier is 24 per hour. What is service rate in this problem?

- A. 20
- B. 3
- C. 24
- D. 10

8. In a departmental store customers arrive at a rate of 20 customers per hour. the average number of customers that can be handled by cashier is 24 per hour. Probability that cashier is idle?

- A. 1
- B. 1/6
- C. 5
- D. 5/6

9. What is meant by 'Payoffs' in Game Theory?

- A. Outcome of a game when different alternatives are adopted by players
- B. No. of players involved in a game
- C. Value of a game
- D. Strategies used by players

10. A competitive situation is known as a 'game' if it has given characteristics

- A. Numbers of players is finite
- B. The players make individual decision without direct communication
- C. The payoff is fixed and determined in advance
- D. All given

11. A basic feasible solutions is called _____if the value at least one basic variable is zero

- A. Degenerate
- B. Non degenerate
- C. optimum
- D None of these

12. An event that represent the joint completion of more than one activity is known as

- A. Burst Event.
- B. Joint Event.
- C. Merge Event.
- D. None of these.

13. Total float =

- A. LFij – Efij
- B. LSij – Esij
- C. (A) & (B) both.
- D. None of these.

14. _____ of an event is the difference between is latest occurrence time and its earlier occurrence time

- A. Float
- B. Slack
- C. (A) & (B) both.
- D. None of these.

ALL THE BEST