(b) The values of Lq, Ls, Wq and Ws

(c) Probability of 4 arrivals during 15 minutes interval.

9. Discuss the process, advantages, limitations and applications of simulation.

MBA 2nd Semester 2nd Year (Old) Examination,

May–2018

OPERATIONS RESEARCH

Paper– MBA-207

Time allowed : 3 hours] *[Maximum marks : 80*

Note : *Attempt* ***compulsory Question No. 1*** *from* ***Section-A*** *and* ***four*** *questions from* ***Section-B*** *(****one*** *question from each unit). All questions carry equal marks.*

Section–A

1. Briefly explain the following :

(a) Characteristics of Operations Research (OR)

(b) Unbounded solution

(c) Unbalanced assignment problem

(d) Applications of assignment model

(e) Usefulness of decision theory

(f) Decision trees

(g) Two person zero-sum game

(h) Rule of dominance

Section-B

Unit-I

2. Discuss the methodology of Operatons Research and highlight the role of Operations Research in managerial decision making.

3. Solve the following LPP :

Maximise $z = 4x_1 + 8x_2 + 6x_3$

Subject to $2x_1 + 8x_2 + 2x_3 \leq 940$

$4x_1 + 8x_2 \leq 970$

$2x_1 + 5x_2 \leq 430$

$x_1, x_2, x_3 \geq 0$

Unit-II

4. Explain the characteristics and objectives of transportation model, using a suitable example, explain the concept of degeneracy in transportation problems. Why does it arise and how can it be resolved ?

5. Solve the following assignment for minimising the total time (in hours) :

Jobs	Operator				
	O_1	O_2	O_3	O_4	O_5
J_1	10	5	9	18	11
J_2	13	9	6	12	14
J_3	3	2	4	4	5
J_4	18	9	12	17	15
J_5	11	6	14	19	10

Unit-III

6. Using suitable examples, explain and illustrate the following:

(a) Critical path

(b) Dummy activity

(c) Total float

7. Probability distribution of number of copies of a magazine sold by a hawker is as given below:

Number of copies sold	10	11	12	13	14
Probability	0.10	0.15	0.20	0.25	0.30

Cost of one copy of 30 paise and sales price is 50 paise. Unsold copies can not be returned. Construct the pay-off table and determine the optimal cost.

Also find the value of EPVI.

Unit-IV

8. A Self-service store employs only one cashier. On an average 8 customers arrive per hour while the cashier takes 5 minutes to serve one customer. Find the :

(a) Average time the cashier is free during 8 hour period.