

**M.B.A. (GEN.) / M.B.A. (IT) Sem- III (2012 COURSE)(CHOICE
BASED CREDIT SYSTEM) /M.B.A. (FM) Semester - III (2013
(CHOICE BASED CREDIT SYSTEM) : SUMMER - 2019
SUBJECT : OPERATIONS RESEARCH**

Day : Saturday
Date : 01/06/2019

Time : 10.00 AM TO 01.00 PM
Max. Marks : 100

S-2019-2249

N.B.:

- 1) Attempt **ANY FOUR** questions from Section – I and **ANY TWO** questions from Section – II.
- 2) Answer to both the sections should be written in **SAME** Answer book.
- 3) Figures to the right indicate **FULL** marks.

SECTION – I

Q.1 A toy manufacturer produces two types of dolls : a basic version doll A and a deluxe version doll B. Each doll of type B takes twice as long to produce as one doll of type A. The company have time to make a maximum of 2,000 dolls per day and each type requires equal amount of it. The deluxe version, i.e., type B requires a fancy dress of which there are only 600 per day available. If the company makes a profit of ₹ 30 and ₹ 50 per doll, respectively, on doll A and B; how many of each should be produced per day in order to maximize profit? Solve it by graphic method. **[15]**

Q.2 Solve the following transportation problem: **[15]**

Source	Destination				Available
	1	2	3	4	
1	21	16	25	13	11
2	17	18	14	23	13
3	32	27	18	41	19
Requirement	6	10	12	15	43

Q.3 Consider the problem of assigning five jobs to five persons. The assignment costs are given as follows: **[15]**

		Job				
		1	2	3	4	5
	A	8	4	2	6	1
	B	0	9	5	5	4
Person	C	3	8	9	2	6
	D	4	3	1	0	3
	E	9	5	8	9	5

Determine the optimum assignment schedule.

Q.4 Explain the Matrix Minimum Method with examples. **[15]**

Q.5 Write short notes on **ANY THREE** of the following: **[15]**

- a) Sensitivity Analysis
- b) Limitations of LPP
- c) Floats
- d) Applications of Simulation

P.T.O.

SECTION – II

Q.6 Bright Bakery keeps stock of a popular brand of cake. Previous experience [20] indicates the daily demand as given here:

Daily Demand	0	10	20	30	40	50
Probability	0.01	0.20	0.15	0.50	0.12	0.02

Consider the following sequence of random numbers:

48 78 19 51 56 77 15 14 68 09

Using this sequence, simulate the demand for the next 10 days. Find out the stock situation if the owner of the bakery decides to make 30 cakes every day. Also estimate the daily average demand for the cakes on the basis of simulated data.

Q.7 Consider the data of the project, find its critical path and project duration: [20]

Activity	A	B	C	D	E	F	G	H	I
Predecessor	--	--	--	A	B	C, D	B	E	F, G
Duration (days)	4	7	2	9	6	5	2	10	4

Q.8 a) Determine an initial basic feasible solution to the following transportation [10] problem using North-West Corner Method:

	D ₁	D ₂	D ₃	D ₄	Availability
O ₁	5	3	6	2	19
O ₂	4	7	9	1	37
O ₃	3	4	7	5	34
Demand	16	18	31	25	

b) Explain the graphical method of solving LPP. [10]

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