Enrollment No: _____ Exam Seat No:_____

C.U.SHAH UNIVERSITY

Summer Examination-2017

Subject Name: Operation Research

Subject Code: 5CS03WOR1 **Branch: M.Sc.IT.(WebTech)**

Semester: 3 **Date: 27/03/2017** **Time : 10:30 To 01:30** **Marks : 70**

Instructions:

(1) Use of Programmable calculator and any other electronic instrument is prohibited.
(2) Instructions written on main answer book are strictly to be obeyed.
(3) Draw neat diagrams and figures (if necessary) at right places.
(4) Assume suitable data if needed.

SECTION – I

Q-1 **Attempt the Following questions** **(07)**

a. Define the following terms: Feasible Solution, Unbounded Solution **2**
b. What is OR? Explain Phases of OR **3**
c. What is PERT? **1**
d. What is CPM ? **1**

Q-2 **Attempt all questions** **(14)**

(A) Explain the Structure of Linear Programming Model. **(7)**
(B) Discuss the mathematical model for transportation problem. **(7)**

OR

Q-2 **Attempt all questions** **(14)**

(A) Find the assignment of district that will result in maximize sales. **(07)**

32	**38**	**40**	**28**	**40**
40	**24**	**28**	**21**	**36**
41	**27**	**33**	**30**	**37**
22	**38**	**41**	**36**	**36**
29	**33**	**40**	**35**	**39**

Q-3 **Attempt all questions** **(14)**

(A) A Project has the following time schedule **(07)**

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

Draw the Network and Critical Path.

(B) Differentiate PERT V/S CPM **(07)**

OR

Q-3 **(A)** What is dummy activity? Explain Event & Activity. **(7)**

(B) What is Formulation? **(7)**

SECTION – II

Q-4 **Define the following terms:** **(07)**

a. Events in Network **2**

b. Looping in Network **2**

c. Linear Equation **2**

d. Slack Variable **1**

Q-5 **Attempt all questions** **(14)**

(A) Find Out the solution using the NWCM,LCM METHOD. **(07)**

	D1	D2	D3	D4	SUPPLY
S1	19	30	50	10	7
S2	70	30	40	60	9
S3	40	8	70	20	18
DEMAND	5	8	7	14	34

(B) Explain Hungarian Method for optimal solution.(Assume Suitable Data whenever Necessary) **(07)**

OR

Q-5 **(A)** Explain Graphical solution methods of LP problem. (Assume Suitable Data Whenever Necessary). **(07)**

(B) Enlist the various steps of simplex Method algorithm for Minimization Case. **(07)**

Q-6 **Attempt all questions** **(14)**

(A) Enlist the various steps of simplex Method algorithm for Maximization Case. **(07)**

(B) Explain assignment problem and their feasible solution with example. **(07)**

OR

Q-6 **Attempt all Questions**

(A) Find Out the solution using the Vogel's approximation method **(07)**

	D1	D2	D3	D4	SUPPLY
S1	19	30	50	10	7
S2	70	30	40	60	9
S3	40	8	70	20	18
DEMAND	5	8	7	14	34

(B) Explain slack, surplus and artificial variables with suitable example. **(07)**