

JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT  
TEST -2 EXAMINATION, OCTOBER 2018

Dr. Neelkanth

B.Tech (All Branches) VII<sup>th</sup> Semester

Course Code: 10B1WMA731

MAX. MARKS: 25

Course Name: Optimization Techniques

Course Credits: 03

MAX. TIME: 1.5 Hr

Note: All questions are compulsory. Carrying of mobile phone during examinations will be treated as case of unfair means. Marks are indicated in square brackets against each question

Q1. Solve the Linear programming problem using Big M method.

(CO2) [6]

$$\text{Max } Z = 2x_1 - x_2 + x_3 + 50$$

$$\text{s/t } 2x_1 + 2x_2 - 6x_3 \leq 16, \quad 12x_1 - 3x_2 + 3x_3 \geq 16, \quad -2x_1 - 3x_2 + x_3 \leq 4$$

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

Q2.(a) Write mathematical form of assignment problem.

(CO3) [3]

(b) Solve the assignment problem

(CO3)[3]

Person/Job	A	B	C	D	E
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	0
6	4	7	5	6	8

Q3. Find basic feasible solution of transportation problem

(CO4) [6]

Plant/Warehouse	A	B	C	D	Availability
X	30	20	50	20	75
Y	20	10	20	40	120
Z	40	30	40	30	105
Requirement	65	60	80	95	

Using (a) North west corner rule (b) Least cost method

Q4. Solve the transportation problem

(CO4) [7]

Plant/Warehouse	A	B	C	D	E	Availability
X	175	150	25	300	375	250
Y	225	125	0	275	350	150
Z	150	200	75	225	300	200
W	200	125	50	250	325	300
Requirement	150	100	75	250	200	