18/3/17

DOON UNIVERSITY, DEHRADUN

Semester Mid Term Examination, even Semester, 2017

School of social science

M.Sc. (Economics) 8th Sem

Course: SSEI-523: Operation Resaerch

Max time – 2 hours **Max Marks-30**

Q -1 write the concept of linear programming and describe it with advantage and limitation. (6 marks)

Q -2 a manufacturing company is engaged in producing three types of product A ,B and C .the production department produces each day component sufficient to make 50 unit of A,25 unit of B and 30 unit of C. the management is confronted with the problem of optimizing the daily production of product in assembly department where only 100 manhour areavailable daily to assemble the product the following additionalinformation is available

Type of product	Profit contribution per unit of product(Rs)	Assembly time per product(hrs)
A	12	.80
B	20	1.7
C	45	2.5

The company has a daily order commitment for 20 units of product a and a total of 15 units of products B and C. formulate this problem as an LP model so as to maximize the total profit. (4 marks)

Q -3 solve by using simplex method

Maximum z= 3x1+5x2+4x3

Subject to constraints

2x1+3x2<=8

2x2+5x3<=10

3x1+2x2+4x3<=15

X1,x2,x3>=0 (10 marks)

Q -4 Discuss the role of sensitive analysis in linear programming under what circumstances is it needed, under what circumstances is it needed? (5 marks)

Q -5. Solve the following with VAM method and test for optimality. (5 marks)

	W_1	W_2	W_3	W_4	Supply
F_1	10	0	20	11	20
F_2	12	7	9	20	25
F_3	0	14	16	18	15
Demand	10	15	15	20	