Tribhuvan University
Faculty of Humanities & Social Sciences
OFFICE OF THE DEAN
2021

Bachelor in Computer Applications
Course Title: Operational Research
Code No: CAOR453
Semester: VIII

Full Marks: 60
Pass Marks: 24
Time: 3 hours

Candidates are required to answer the questions in their own words as far as possible.

Group B

Attempt any SIX questions.   [6×5 = 30]

2. What is Operational Research? Explain the general methods for solving OR models   [1+4]

3. What do mean by mathematical formulation of LPP? A firm manufactures three products A, B, C. Time to manufacture product A is twice that for B and thrice that for C and to be produced in the ratio 3 : 4 : 5. The relevant data is given in the following Table. If the whole raw material is engaged in manufacturing product A, 1600 units of this product can be produced. There is demand for at least 300, 250, 200 units of products A, B and C and the profit earned per unit is Rs. 50, Rs. 40, Rs. 70, respectively. Formulate the problem as a linear programming problem.
                                                                                  [1+4]

Raw Material	Requirement per unit of product (kg)			Total Availability (kg)
	A	B	C	
P	6	5	9	5000
Q	4	7	8	6000

4. Write an algorithm to maximize the solution of LPP using Simplex method.

5. Find the optimal solution for the following transportation problem using any methods.

1	2	1	4	30
3	3	2	1	50
4	2	5	9	20
20	40	30	9	100

6. Write Hungarian algorithm to solve the assignment problem.

7. Classify the queueing models with example.

8. Write short notes on (Any Two):   [2.5+2.5]
   a) EOQ
   b) Kendall's Notation for Queueing Model
   c) Duality theorem