MCOHC-3.2

Sl.No. : **Total No. of Pages : 4**

III Semester M.Com. Degree Examination July - 2024

(CBCS, SLM Scheme)

COMMERCE

Course - II : Quantitative Techniques

Time : 3 Hours **Max. Marks : 80**

Instruction : Answer all the sections.

SECTION - A

Answer any four questions. Each question carries five marks. **[4×5=20]**

Q1) Briefly discuss the scope of Quantitative Technique.

Q2) State the different methods of solving the assignment problem.

Q3) List out the benefits of game theory.

Q4) A Project Schedule has the following characteristics, construct network diagram.

Activity	1-2	1-3	2-4	3-4	3-5	4-9	5-6	5-7	6-8	7-8	8-10	9-10
Time (days)	4	1	1	1	6	5	4	8	1	2	5	7

Q5) State the properties of Normal Distribution.

Q6) What are the main features of the decision theory?

SECTION - B

Answer any Three questions. Each question carries ten marks. **[3×10=30]**

Q7) Enumerate the applicability of various models in Quantitative Techniques.

Q8) What is network analysis? Explain the differences between PERT and CPM method of network analysis.

Q9) Solve the following LPP by Graphical Method.

Minimize $Z = 20x_1 + 10x_2$

subject to

$x_1 + 2x_2 \leq 40$

$3x_1 + x_2 \geq 30$

$4x_1 + 3x_2 \geq 0$

$x_1, x_2 \geq 0$

Q10) Solve the following transportation problem under Least Cost Method.

Source	D_1	D_2	D_3	D_4	D_5	Supply
S_1	4	7	3	8	2	4
S_2	1	4	7	3	8	7
S_3	7	2	4	7	7	9
S_4	4	7	2	4	7	2
Demand	8	3	7	2	2	22

Q11) A machine operator has to perform two operations, turning and threading, on a number of different jobs. The time required to perform these operations in minutes for each job is given. Determine the order in which the jobs should be processed in order to minimize the total time required to turn out all the jobs.

Jobs	1	2	3	4	5	6
Time for turning (in min)	3	12	5	2	9	11
Time for threading (in min)	8	10	9	6	3	1

SECTION - C

Answer any Two questions. Each questions carries fifteen marks. **[2×15=30]**

Q12) What is probability? Explain the different theoretical Distributions.

Q13) Write a note on:

a) Optimum Solution

b) Constraints

c) Surplus Variables

Q14) Following informations available in an inventory problem:

Annual Demand	2,400units
Unit Price(₹)	2.40
Ordering Cost (₹)	4.00
Storage Cost	2% p.a.
Interest rate	10% p.a.
Lead time	½ month

Calculate EOQ, recorder level and total annual inventory cost. How much does the total inventory cost vary if the unit price is changed to ₹ 5?

Q15) Solve the following assignment problem using Hungarian method. The matrix entries represent the processing time in hours:

Job	1	2	3	4	5
1	9	11	14	11	7
2	6	15	13	13	10
3	12	13	6	8	8
4	11	9	10	12	9
5	7	12	14	10	14