Roll No. ⬚⬚⬚⬚⬚⬚⬚⬚⬚⬚⬚⬚⬚   Total No. of Pages : 03

Total No. of Questions : 10

M.Comm   (Sem.–2)
QUANTITATIVE TECHNIQUES
Subject Code : MCOP-103-18
M.Code : 79081
Date of Examination : 23-01-2023

Time : 3 Hrs.   Max. Marks : 60

INSTRUCTIONS TO CANDIDATES :

1. **SECTION-A contains EIGHT questions carrying TWO marks each and students has to attempt ALL questions.**
2. **SECTION-B consists of FOUR Subsections : Units-I, II, III & IV. Each Subsection contains TWO questions each carrying EIGHT marks each and student has to attempt any ONE question from each Subsection.**
3. **SECTION-C is COMPULSORY and consist of ONE Case Study carrying TWELVE marks.**

SECTION-A

l.   **Write briefly :**

a) Explain the advantages and limitations of statistics.

b) What is the difference between positional and mathematical averages?

c) Explain linear and non-linear correlation.

d) What is the relationship between correlation and regression?

e) Explain the properties of Poisson Distribution.

f) Explain the concept of pure and mix strategy in game theory.

g) What is Vogel's Approximation Method? Elaborate.

h) How PERT is different from CPM?

SECTION-B

UNIT-I

2. What is the difference between skewness and kurtosis? Explain with examples.

3. Find out the range, standard deviation and its variance from the table given below:

x	10	11	12	13	14	15
f	8	10	16	20	4	2

UNIT-II

4. What do you mean by regression? Explain the principles and properties of regression analysis.

5. A cable wire company has spent heavily on advertisements. The sales and advertisement expenses (in thousand rupees) for the 12 randomly selected months are given in the table. Develop a regression model to predict the impact of advertisement on sales.

Months	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Advertisement	92	94	97	98	100	102	104	105	105	107	107	110
Sales	930	900	1020	990	1100	1050	1150	1120	1130	1200	1250	1220

UNIT-III

6. Explain the procedure of formulation of linear programming problem with example.

7. Use the graphical method to solve the following LP problem.

Minimize $Z = 3x_1 + 2x_2$

Subject to the constraints

$5x_1 + x_2 \geq 10$;

$x_1 + x_2 \geq 6$;

$x_1 + 4x_2 \geq 12$;

$x_1, x_2, \geq 0$

UNIT-IV

8. Explain the different methods for finding out the solution of assignment problems.

9. Goods have to be transported from sources A, B and C to destinations I, II and III. The transportation cost per unit, capacities of the sources, and the requirements of the destinations are given in the following table :

Sources/Destination	I	II	III	Supply
A	8	5	6	120
B	15	10	12	80
C	3	9	10	80
Demand	150	80	50	280

SECTION C

10. Study the following case and answer the question(s) that follow:

Christopher, an architect has been awarded a contract to prepare plans for an urban renewal project. The job consists of the following activities and their estimated times :

Activity	Description	Immediate predecessors	Time (days)
A	Prepare preliminary sketches	-	2
B	Outline specifications	-	1
C	Prepare drawings	A	3
D	Write specifications	A, B	2
E	Run off prints	C, D	1
F	Have specifications	B, D	3
G	Assemble bid packages	E, F	1

a) Draw the network diagram of activities for the project.

b) Indicate the critical path, and calculate the total float and free float for each activity.

NOTE : Disclosure of Identity by writing Mobile No. or Marking of passing request on any paper of Answer Sheet will lead to UMC against the Student.