Reg. No										

AY - 24

Gandhi Institute of Engineering and Technology University, Odisha, Gunupur
(GIET UNIVERSITY)

M.B.A. (First Semester) Regular Examinations, January – 2025

25MBAPC106 – Quantitative Techniques for Managers

(MBA)

Time: 3 hrs | Maximum: 60 Marks

(The figures in the right hand margin indicate marks.)

PART – A **(2 x 5 = 10 Marks)**

Q.1. Answer ***ALL*** questions	CO #	Blooms Level
a. The median of the data 3, 7, x, 15, 18is 9. Find the value of x.	CO1	K2
b. The regression coefficient of Y on X is $b_{yx} = 0.6$ and the mean values are $\bar{X} = 10$, $\bar{Y} = 20$. Write the regression equation of Y on X.	CO2	K2
c. A fair coin is tossed 5 times. Find the probability of getting exactly 3 heads.	CO3	K2
d. Maximize $Z = 3x + 4y$ subject to $x + y \leq 6$, $x \geq 0$, $y \geq 0$ State the feasible region	CO4	K2
e. Explain the principle of dominance in game theory.	CO5	K1

PART – B **(10 x 5 = 50 Marks)**

Answer ***all the*** questions

		Marks	CO #	Blooms Level
2. a.	The following table shows the distribution of marks obtained by 100 students:	10	CO1	K2

Class Interval	0–10	10–20	20–30	30–40	40–50	50–60
Frequency	5	10	20	30	25	10

Calculate:

1. Arithmetic Mean
2. Median
3. Mode

OR

b.	The following data represents the frequency distribution of daily wages (in ₹) of workers in a factory:	10	CO1	K2

Daily Wages	200–250	250–300	300–350	350–400	400–450	450–500
Frequency	5	9	18	30	22	16

Compute Karl Pearson's coefficient of skewness and standard deviation

3. a.	The marks obtained by 8 students in two subjects are given below. Calculate Spearman's rank correlation coefficient.	10	CO2	K2

Student	A	B	C	D	E	F	G	H
Maths	78	65	80	72	60	85	70	75
Stats	82	68	78	74	62	88	72	76

OR

b.	From the following data, find: 1. The regression equation of Y on X 2. The regression equation of X on Y 3. Estimate the value of Y when $X = 6$	10	CO2	K2

X	2	4	6	8	10
Y	5	7	9	10	13

4. a.	The probability that a machine produces a defective item is 0.1. If 10 items are selected at random:	10	CO3	K2

1. Find the probability that exactly 2 items are defective
2. Find the probability that at most 2 items are defective
3. Find the mean and variance of the distribution

OR

b. The marks obtained by students in an examination are normally distributed with mean 60 and standard deviation 10. 10 CO3 K2

1. Find the percentage of students scoring more than 75 marks
2. Find the percentage of students scoring between 50 and 70 marks
3. If 1,000 students appeared for the exam, estimate the number of students scoring less than 40 marks

5. a. Solve the following LPP using the Simplex Method: 10 CO4 K2

Maximize $Z = 3x_1 + 5x_2$

$$\text{Subject to: } \begin{aligned} x_1 + x_2 &\leq 4 \\ 2x_1 + x_2 &\leq 5 \\ x_1, x_2 &\geq 0 \end{aligned}$$

OR

b. Solve the following transportation problem to minimize the total transportation cost using: 10 CO4 K2

1. North-West Corner Rule
2. Least Cost Method
3. MODI Method (to test optimality)

	D1	D2	D3	Supply
S1	2	3	1	30
S2	5	4	8	40
S3	5	6	8	20
Demand	20	30	40	

6. a. Use the dominance principle to reduce the game and then solve it. 10 CO5 K2

A \ B	B_1	B_2	B_3
A_1	4	6	8
A_2	3	5	7
A_3	2	4	6

OR

c. Solve the following game and determine the optimal strategies of both players. Also find the value of the game. 10 CO5 K2

A \ B	B_1	B_2	B_3
A_1	3	2	4
A_2	1	5	2
A_3	4	3	3

End of Paper