

GUJARAT TECHNOLOGICAL UNIVERSITY
MBA Integrated– SEMESTER –II-EXAMINATION – WINTER-2023

Subject Code:2527102**Date: 02-01-2024****Subject Name: Business Statistics****Time:10:30 AM TO 01:30 PM****Total Marks: 70****Instructions:**

1. Attempt all questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.
4. Use of simple calculators and non-programmable scientific calculators are permitted.

- Q.1** (a) What is statistics? How do you think that the knowledge of statistics is essential in management decision? Give examples. **07**
- (b) What are the different measures of central tendency? Discuss the essentials of an ideal average. **07**
- Q.2** (a) Five men in a company of 20 are graduates. If 3 men are picked out of the 20 at random, What is the probability that they all are graduates? What is the probability that at least one graduate? And what is the probability that no graduate? **07**
- (b) Find the correlation coefficient by Karl Pearson's method between x and y and interpret its value. **07**

X:	57	42	40	33	42	45	42	44	40	56	44	43
Y:	10	60	30	41	29	27	27	19	18	19	31	29

OR

- (b) Explain the meaning of each of the following terms: **07**
- a) Random phenomenon
 - b) Random Event
 - c) Sample space
- Q.3** (a) Describe various methods of measuring variations. Which of these do you consider as the best and why? **07**
- (b) A financial analyst wanted to find out whether inventory turnover influences company's earnings per share (in percent). A random sample of 7 companies listed in a stock exchange was selected and the following data was recorded for each. **07**

Company	Inventory turnover (Number of times)	Earnings per share (Percent)
A	4	11
B	5	9
C	7	13
D	8	7
E	6	13
F	3	8
G	5	8

Find the strength of association between inventory turnover and earnings per share and interpret this finding by using Spearman's Rank correlation.

OR

- Q.3 (a)** Write detail note on principle of measurement scale. **07**
- (b)** A problem in business statistics is given to five students, A, B, C, D and E. Their chances of solving it are $\frac{1}{2}$, $\frac{1}{3}$, $\frac{1}{4}$, $\frac{1}{5}$ and $\frac{1}{6}$ respectively. What is the probability that problem will be solved? **07**

- Q.4 (a)** What is mean by 'correlation'? Distinguish between positive, negative and zero correlation. **07**
- (b)** In a post office, three clerks are assigned to process incoming mail. The first clerk, A processes 40 percent; the second clerk, B processes 35 percent; and the third clerk, C processes 25 percent of the mail. The first clerk has an error rate of 0.04, the second clerk has an error rate of 0.06 and the third clerk has an error rate of 0.03. A mail selected at random from day's output is found to have an error. The postmaster wishes to know that the probability that it was processed by clerk A or clerk B or clerk C. **07**

OR

- Q.4 (a)** The mean yearly salary paid to all employees in a company was Rs.24,00,000. The mean yearly salary paid to male and female employees was Rs. 25,00,000 and Rs. 19,00,000, respectively. Find out the percentage of male and female employees in the company. **07**
- (b)** Define the terms relative frequency and cumulative frequency. How are these related to a frequency distribution? **07**

- Q.5 (a)** The length of time taken by each of 18 workers to complete a specific job was observed to be the following: **07**

Time (in min)	5-9	10-14	15-19	20-24	25-29
Number of workers	3	8	4	2	1

- a) Calculate the median time
- b) Calculate Q1 and Q3
- (b)** The following data relate to the scores obtained by 9 sales men of a company in an intelligence test and their weekly sales (Rs. In 1000's) **07**

Salesman	A	B	C	D	E	F	G	H	I
Weekly sales	50	60	50	60	80	50	80	40	70
Time score	30	60	40	50	60	30	70	50	60

- a) Obtain the regression equation of sales on intelligence test scores of the salesman.
- b) If the intelligence test score of a salesman is 65, what would be his expected weekly sales?

OR

- Q.5 (a)** What do you mean by probability? Explain the importance of probability. **07**
- (b)** The police records show the following numbers of daily crime reports for a sample number of days during the winter months and sample number of days during the summer months. **07**

Winter	18	20	15	16	21	20	12	16	19	20
Summer	28	18	24	32	18	29	23	38	28	18

- a) Compute the range and inter-quartile range for each period.
- b) Compute the variance and standard deviation for each period.
- c) Compute the coefficient of variation for each period.
