

[This question paper contains 4 printed pages.]

3076

Your Roll No. ....

MEM

J

Paper – ME.506

Industrial Statistics and Forecasting

Time : 3 Hours

Maximum Marks : 100

*(Write your Roll No. on the top immediately  
on receipt of this question paper.)*

*Attempt any five questions.*

*All questions carry equal marks.*

1. (a) Classify the measures of Dispersion and state the characteristics of an ideal measure of Dispersion. (5)
- (b) Determine a coefficient of dispersion based on quartile deviation and a measure of skewness from the following table given the wages of 222 persons :

Wages (Rs./day)	No. of persons	
280–320	11	
320–360	17	
360–400	34	
400–440	41	
440–480	49	
480–520	44	
520–560	19	
560–600	07	(15)

P.T.O.

2. (a) Compare Mathematical (Priori) and Von Mises's statistical definition of probability. (5)

- (b) The coefficient of the equation

$$ax^2 + bx + c = 0$$

is determined by throwing an ordinary six face die. What will be the probability that the given equation will have roots (i) real and (ii) equal.

(15)

3. Define (i) Mathematical Expectation (ii) Correlation coefficient (iii) Covariance (iv) Moment generating function and determine the expected value of the number of points that will be obtained in a single throw with an ordinary dice. (20)

4. (a) A machine output is 16 imperfect articles out of 500. After repairing and overhauling it has been observed that its output becomes 03 (three) imperfect articles in a batch of 100. Has the machine been improved, justify your answer.

(10)

- (b) One each random samples of two separate batches have following figures :

	Batch 1	Batch 2
Mean height of object (in mm)	67.42	67.25
Standard deviation	2.58	2.50
Number in sample	1000	1200

Is the difference between the standard deviations significant? (10)

5. (a) Write chief features of the Chi-square probability and t-probability curves. (10)
- (b) Describe Snedecor's F Distribution and write its important properties. (10)
6. (a) A and B play game in which A's chance of winning is  $\frac{2}{3}$ . What is the chance of his winning 06 games out of 08 games. (5)
- (b) One hundred persons were randomly selected from two-states and asked for their highest educational qualification. The results are as follows :

Sex	Class VIII	Class X	Class XII	Total
Male	10	15	25	50
Female	25	10	15	50
Total	35	25	40	100

Can you say that education depends on sex ?

[Take - for 2 d.f.  $\chi_{0.05}^2 = 5.99$  and  $\chi_{0.01}^2 = 9.21$ ]  
(15)

7. Draw and describe the block diagram for the informations flow in sales forecasting and business planning. (20)

P.T.O.

8. Write short note on any two of the following :

- (i) Delphi method of forecasting
  - (ii) NGT method of forecasting
  - (iii) Classical decomposition of time series forecasting
  - (iv) Exponential smothing method of forecasting
- (10×2=20)