

6. (a) Define Time Series. Explain the components of time series and its uses.
- (b) Explain various approaches to the concepts of probability. Write down the sample space when two coins and six faced dice are tossed together.
7. Compute the estimated premium amount for a person aged 50 years based on the data given below :

Age of Life Insured (in years)	45	48	36	30	55	58
Yearly Premium (in ₹ 000'S)	28	29	22	20	34	35

- (i) Also estimate the value of the coefficient of correlation and interpret it.
- (ii) What is the annual increment in premium as the person ages every year ?
8. Write short notes on (any **two**) :
- (i) Consumer Price Index and Stock Market Index
- (ii) Normal Curve
- (iii) Conditions under which the binomial distribution is used.

[This question paper contains 4 printed pages]

Your Roll No. :

Sl. No. of Q. Paper : 676 I

Unique Paper Code : 6132351102

Name of the Paper : Statistics for Insurance

Name of the Course : **B.A. (VS) Insurance Management (NEP)**

Semester : I

Time : 3 Hours **Maximum Marks : 90**

Instructions for Candidates :

- (a) Write your Roll No. on the top immediately on receipt of this question paper.
- (b) Attempt any **FIVE** questions.
- (c) **All** questions carry equal marks.

1. Answer the following :

- (a) Define median. How is it different from arithmetic mean ?
- (b) Discuss any 3 properties of arithmetic mean and median.
- (c) From the data given below, compute Q1, Q3, D2, P10 and P90:

Marks	Below 10	10-20	20-40	40-60	60-80	Above 80
No. of Students	8	10	22	25	10	5

2. From the data given below, compute :

- The two regression equations
- The coefficient of correlation between marks in mathematics and marks in statistics
- Most likely marks in statistics when marks in mathematics is 45

Marks in mathematics	25	28	35	32	31	36	29	38	34	32
Marks in Statistics	43	46	49	41	36	32	31	30	33	39

3. The data given the table below pertains to number of insurance claims during the last 7 years in India:

Year	2017	2018	2019	2020	2021	2022	2023
Insurance Claims (in ₹ 000s)	155	162	171	182	158	180	178

- Using method of least square, fit a straight-line trend equation to the data.
- What will be the probable number of claims for the year 2025 ?

- Convert the annual trend equation into monthly trend equation with 2017 as the base year.

4. (a) "Index numbers are barometers of economic activity". In the light of this statement, discuss the concept, uses and types of index numbers.
- (b) Given below are two series of index-Series A with 2013 as base year and Series-B with 2017 as the base year :

Year	Series A	Series B
2013	100	
2014	120	
2015	130	
2016	150	
2017	160	100
2018		120
2019		150
2020		140

Splice the two series together so as to give a continuous series with base 2023=100.

5. (a) The mean of 99 items is 55. The value of 100th item is 99 more than the mean of 100 items. What is the value of 100th item?
- (b) Define an independent event. Can two events be mutually exclusive and independent simultaneously ? Support your answer with the help of an example.