(i) Printed Pages: 4 Roll No. .....

(ii) Questions : 9 Sub. Code : 1 3 4 0 2

Exam. Code : 5 0 4 1

Bachelor of Computer Application (FYUP) 1st Semester

(2124)

FUNDAMENTAL OF MATHEMATICAL STATISTICS

Paper—BCA102

Time Allowed : Three Hours] **[Maximum Marks : 90**

Note :—Attempt **FIVE** questions in all, selecting **ONE** question each from Units I, II, III and IV. Question No. **9** is compulsory. All questions carry equal marks. Log tables and non-programmable calculators are allowed.

UNIT—I

1. (i) Discuss primary and secondary data sources with examples.

   (ii) Find the simple and weighted Arithmetic Mean of the first n natural numbers, the weights being the corresponding numbers.

   (iii) A cyclist pedals from his house to his college at a speed of 10 miles per hour and back from the college to his house at 15 miles per hour. Find the Harmonic Mean. 6+6+6=18

2. (i) Write short note on different statistical techniques.

(ii) The weighted Geometric Mean of three numbers 229, 275 and 125 is 203. The weights for the first and second numbers are 2 and 4, respectively. Find the weight of third number.

(iii) What are grouped and ungrouped frequency distribution ? Explain with example. 6+6+6=18

UNIT—II

3. (i) Obtain Median and Mode for the following frequency distribution :

x	1	2	3	4	5	6	7	8	9
f	8	10	11	16	20	25	15	9	6

4+5=9

(ii) Write formulas for : Quartiles, Computation of inter quartile range, Mean Deviation and Standard Deviation.

2+2+2+3=9

4. (i) Calculate the Standard Deviation and Coefficient of Variation for the given frequency table :

Interval	1 to 5	6 to 10	11 to 15	16 to 20
Frequency	1	2	3	4

4+5=9

(ii) Discuss using examples for discrete series, continuous series and correcting incorrect standard deviation.

3+3+3=9

UNIT—III

5. (i) Calculate Karl Pearson's coefficient of correlation (using any technique) for :

x	12	16	20	24	28	32	36
y	6	9	12	15	18	21	24

9

(ii) Discuss types of correlation, coefficient of determination and coefficient of concurrent deviation. 3+3+3=9

6. (i) Calculate Spearman's coefficient of correlation (assume ranks are given) for :

x	1	2	3	4	5	6	7
y	6	2	9	7	1	4	8

9

(ii) Write short notes on :

(a) Types of measuring correlation.

(b) Difference between rank coefficient and Karl Pearson's coefficient. 4+5=9

UNIT—IV

7. (i) Find Linear Regression equation for the following two sets of data :

x	2	4	6	8
y	3	7	5	9

9

(ii) Write short note on properties of regression coefficient and limitations of regression analysis. 4+5=9

8. (i) Find the regression coefficients for the following data :

Age	20	15	16	17
Marks	99	65	79	75

9

(ii) Discuss linear and non-linear regression in detail. 9

(Compulsory Question)

9. (i) Define Arithmetic, Geometric and Harmonic Means with their formulas.

(ii) How Median is different from Mode ? Explain with an example.

(iii) How is scatter diagram method different from graphic method in measuring correlation ?

(iv) Discuss properties of regression coefficient.

(v) Define Quintiles, Hexiles and Percentiles.

(vi) Discuss importance of measures of central tendency in data understanding. 3×6=18