

(i) Printed Pages : 4

Roll No.

(ii) Questions : 9

Sub. Code :

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Exam. Code :

5	0	4	1
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Bachelor of Computer Application (FYUP) 1st Semester

(2125)

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 number **9** is compulsory. All questions carry equal marks. Log tables and non-programmable calculators are allowed.

UNIT-I

1. (i) Write short notes using examples for:
 - (a) Sources of collecting primary and secondary data,
 - (b) Measures of central tendency.
- (ii) For the numbers 1, 4, 16, 64, find the Arithmetic Mean (AM), Geometric Mean (GM), and Harmonic Mean (HM). Also, prove for this data, $HM \leq GM \leq AM$.

(5+4)+9=18

2. (i) Write short notes on:
- Steps in statistical investigation,
 - Grouped frequency distribution.
- (ii) For the numbers 1, 4, 16 with corresponding weights 1, 2, 1 respectively, find the weighted arithmetic mean (WAM), weighted geometric mean (WGM), and weighted harmonic mean (WHM). Also, prove for this data, $WHM \leq WGM \leq WAM$. (5+4)+9=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	7	12	9	14	18	22	17	11	8

$$4+5=9$$

- (ii) Write formulas for:

- Standard deviation for individual series,
- Computation of interquartile range,
- Discrete series.

$$3+3+3=9$$

4. (i) Calculate the mean, standard deviation, and coefficient of variation for the given frequency table:

Interval	10-20	20-30	30-40	40-50	50-60
Frequency	3	5	8	6	3

$$2+3+4=9$$

(ii) Discuss using examples for:

(a) Hexiles

(b) Variance

(c) Continuous series.

3+3+3=9

UNIT-III

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

x	10	14	18	22	26	30	34
y	7	11	15	19	23	27	31

9

(ii) Write short notes on:

(a) Correlation and its scatter diagram method

(b) Probable error.

6+3=9

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

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

9

(ii) Write short notes on:

(a) Coefficient of determination

(b) Difference between Rank Coefficient and Karl Pearson's coefficient of correlation.

3+6=9

UNIT-IV

7. (i) Find linear regression equation for the following two sets of data:

x	3	6	9	12
y	5	11	9	15

9

- (ii) Write short notes on:

(a) Regression Coefficient in case of Grouped Data

(b) Non-linear regression.

5+4=9

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

Age	21	14	17	19
Marks	95	68	82	78

9

- (ii) Discuss in detail the properties of regression coefficient and limitations of regression analysis.

5+4=9

(Compulsory Question)

9. (i) Discuss measure of central tendency.
- (ii) What is percentile range and how to compute it?
- (iii) Write short note on coefficient of concurrent deviation.
- (iv) Write short note on linear regression.

5+5+4+4=18