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

(ii) Questions : 9 Sub. Code : 0912

Exam. Code : 0027

Bachelor of Computer Applications 1st Semester

1128

FUNDAMENTALS OF MATHEMATICAL STATISTICS

Paper : BCA-16-102

Time Allowed : Three Hours] **[Maximum Marks : 65**

Note :— (1) Attempt **one** question from each unit and compulsory Question No. **9**.

(2) Use of non-programmable calculator is allowed.

UNIT—I

1. (a) Define Statistics. Explain various statistical techniques in detail. 7

   (b) Differentiate among Arithmetic, Geometric and Harmonic Mean in detail. 6

2. (a) What do you understand by Statistics ? Explain its uses and limitations in detail. 7

   (b) Why Harmonic mean is calculated ? Explain the methods for calculating simple HM for Discrete and Continuous series. 6

UNIT—II

3. (a) Determine the value of Median :

Class	11—12	13—14	15—16	17—18	19—20
Frequency	5	426	720	741	665
Class	21—22	23—24	25—26	27—28	29—30
Frequency	395	38	8	5	7

7

(b) How mean deviation, standard deviation and variance are calculated ? Explain. 6

4. (a) Calculate quartiles (lower, upper) and 9th decile :

R No.	1	2	3	4	5	6	7	8	9
Mks.	29	65	33	45	51	72	48	33	42
R No.	10	11	12	13					
Mks.	25	28	35	46					

7

(b) How do you compute "Inter Quartile" and "Percentile" range ? Explain. 6

UNIT—III

5. (a) Why correlation analysis is required ? Explain "Scatter Diagram" and "Graphic Method" techniques in detail. 7

(b) Calculate Karl Pearson's coefficient of correlation using method of your choice :

M_1	75	60	45	30	15
M_2	150	175	200	225	250

6

6. (a) Define Correlation Analysis. Explain various types of Correlation in detail. 7

(b) Find the coefficient of concurrent deviation :

X	109	122	96	142	151	124	125
Y	14.9	6.3	5.8	12.2	33.2	13.3	14.6
X	102	109	156	122			
Y	8.8	4.9	39.8	6.3			

6

UNIT—IV

7. (a) What is Regression Analysis ? Explain its objectives. Also draw difference between Correlation and Regression. 2+3+2

(b) Find regression equation $X_c = a + bY$ for :

X	1	3	5	7	9
Y	15	18	21	23	22

6

8. (a) What is Regression Coefficient ? Find both the Co-efficients :

X	11	7	9	5	8	6	10
Y	10	8	6	5	9	7	11

7

(b) Define Regression. Explain its uses and limitations. 6

(Compulsory Question)

9. Explain :

(a) Central Tendency 2

(b) Weighted Arithmetic Mean 2

(c) Weighted Geometric Mean 2

(d) Tabulation of Data 2

(e) Hexiles 2

(f) Rank Correlation. 3