

CS/BBA/BIRM/BSCM/ODD SEM/SEM-1/BBA-103/2016-17



**MAULANA ABUL KALAM AZAD UNIVERSITY OF
TECHNOLOGY, WEST BENGAL**

Paper Code : BBA-103

STATISTICS-I

Time Allotted : 3 Hours

Full Marks : 70

The figures in the margin indicate full marks.

*Candidates are required to give their answers in their own
words as far as practicable.*

GROUP – A

(Multiple Choice Type Questions)

1. Choose the correct alternatives for any *ten* of the
following : $10 \times 1 = 10$

i) The relation between mean, median, mode is

- a) mean-mode = 3 (mean-median)
- b) mean-mode = median-mean
- c) mean-median = 3 (mean-mode)
- d) none of these.

ii) A. M. of 1, 2, 3 , n is

- | | |
|-------------------|----------------------|
| a) $\frac{n}{2}$ | b) $\frac{(n+1)}{2}$ |
| c) $\frac{2n}{2}$ | d) none of these. |

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- iii) The range of the following marks of 10 students : 91, 54, 44, 56, 71, 25, 09, 27, 72, 62 is
- a) 80 b) 82
c) 79 d) 70.
- iv) If $Q_1 = 38.2$ and $Q_3 = 74.8$, then quartile deviation is
- a) 36.6 b) 18.3
c) 9.15 d) none of these.
- v) Variance is independent of but depends on.....
- a) Origin, scale
b) Scale, origin
c) Origin, no. of observations
d) none of these.
- vi) The degree of peakedness or flatness of a unimodal distribution is called
- a) Skewness b) Symmetry
c) Dispersion d) Kurtosis.
- vii) If $r = 0.6$, $cov(x, y) = 12$ and S. D of $y = 5$, then S.D of x is
- a) 3 b) 4
c) 5 d) none of these.

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viii) If $\beta_1 = 9$ and $\beta_2 = 5.08$ of a data set, the values of skewness and kurtosis will be

- a) 9, 4
- b) 7.06, 3.99
- c) 3, 2.08
- d) 1.03, 2.08.

ix) In regression analysis, two regression lines intersect at the point

- a) (0, 0)
- b) (a, a)
- c) (\bar{X} , \bar{Y})
- d) (X, Y)

x) For distribution A. M. = 105, S. D = 21. The coefficient variation is

- a) 30%
- b) 20%
- c) 19.5%
- d) none of these.

xi) The chart in which different categories of data are represented as percentage of 360 degree is called

- a) Pie diagram
- b) Histogram
- c) Ogive curve
- d) none of these.

xii) When one regression coefficient is negative, the other would be

- a) Negative
- b) Positive
- c) Zero
- d) none of these.

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GROUP – B

(Short Answer Type Questions)

Answer any *three* of the following. $3 \times 5 = 15$

2. Draw a histogram from the following distribution and find mode :

0-10	6
11-20	18
21-30	25
31-40	32
41-50	22
51-60	16
61-70	12

3. Monthly income distribution observed in a region is given in the following table. Calculate the arithmetic mean and median.

Income group (in INR)	No. of people
0-1000	120
1000-2000	200
2000-3000	225
3000-4000	190
4000-5000	175

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4. Find out mean deviation from mean and its coefficient from the following series :

Size of items	Frequency
4	2
6	1
8	3
10	6
12	4
14	3
16	1

5. Calculate the first four moment about 6 for the following frequency distribution :

x	4	5	7	9
f	2	4	3	1

6. Obtain the equations of the two lines of regression for the data given below :

x	18	20	22	23	27	28	30
y	23	25	27	30	32	31	36

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GROUP - C

(Long Answer Type Questions)

Answer any *three* of the following. $3 \times 15 = 45$

7. a) Ages at death (years) of 50 persons of a town are given below :

36	48	50	45	49	31	50	48	43	42
37	32	40	39	41	47	45	39	43	47
38	39	37	40	32	52	56	31	54	36
51	46	41	55	58	31	42	53	32	44
53	36	60	59	41	53	58	36	38	60

Arrange the data in a frequency distribution in 10 class-intervals and obtain the percentage frequency in each class-interval.

- b) Draw ogive (both "less than" and "more than" types) from the following distribution :

Age (in years)	60-62	62-64	64-66	66-68	68-70
No. of persons	15	54	26	81	24

9 + 6

8. a) If the median is 46, find out the missing frequencies :

Class	Frequency
10-20	12
20-30	30
30-40	?
40-50	65
50-60	?
60-70	25
70-80	18
Total	229

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b) Find out mode from the following series :

Marks (more than)	No. of students
70	7
60	18
50	40
40	40
30	63
20	65

9 + 6

9. a) Calculate standard deviation & its coefficient of the following series :

Marks (more than)	No. of Students
0	100
10	90
20	75
30	50
40	20
50	10
60	5
70	0

b) Find the quartile deviation for the following distribution :

Rent	1800-2000	2000-2200	2200-2400	2400-2700	2700-3000	3000-3500
No. of families	4	7	10	5	2	2

9 + 6

10. From the data given below find —

- the two regression equations.
- the coefficient of correlation between marks in Economics and Statistics.

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- c) The most likely marks in Statistics when the marks in Economics is 30 :

Marks in Economics (x)	25	28	35	32	31	36	29	38
Marks in Statistics (y)	43	46	49	41	36	32	31	30

7 + 6 + 2

11. a) The two lines of regression between X and Y are given by

$$2x - 3y + 10 = 0 \text{ and } x - 2y + 50 = 0$$

Find which is the regression line of X on Y and which is Y on X and hence find the regression coefficients. Also find the mean values of X and Y.

- b) The contents of two groups are as follows :

Group I : Size = 30, Mean = 20, S. D. = 3

Group II : Size = 30, Mean = 25, S. D. = 4

Find the mean standard deviation of the combined group.

- c) For a moderately skewed distribution mean = 172, median = 167 and S.D. = 60. Find the coefficient of skewness and mode.

5 + 5 + 5
