CS/BBA(H)/BIRM/BSCM/Odd/Sem-1st/BBA-103/2015-16

MAULANA ABUL KALAM AZAD UNIVERSITY OF TECHNOLOGY, WEST BENGAL

BBA-103

STATISTICS – I

Time Allotted: 3 Hours   Full Marks: 70

The questions are of equal value.
The figures in the margin indicate full marks.
Candidates are required to give their answers in their own words as far as practicable.
All symbols are of usual significance.

GROUP A
(Multiple Choice Type Questions)

1.   Answer any *ten* questions. $10×1 = 10$

(i) The median of the data : 12, 5, 7, 10, 4, 9, 8, 11, 3, 6

(A) 7   (B) 11
(C) 4   (D) none of these

(ii) A.M of 16, 24, 8, 54, 26, 54

(A) 16   (B) 23
(C) 21   (D) none of these

(iii) The mode of the following data : 13, 6, 8, 11, 5, 10, 15, 3, 2

(A) 13   (B) 5
(C) 2   (D) none of these

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(iv) Co-relation co-efficient lies between:

(A) – 1 to 1   (B) 0 to 1

(C) 1 to 2   (D) none of these

(v) Standard deviation depends on:

(A) mean   (B) mode

(C) both (A) and (B)   (D) none of these

(vi) At the point of insertion of two orive we get

(A) mode   (B) standard deviation

(C) mean   (D) median

(vii) HM of 6, 12, 24

(A) 72/7   (B) 12

(C) 14--   (D) none of these

(viii) Varience depends on

(A) origin only   (B) scale only

(C) both (A) and (B)   (D) none of these

(ix) Find first and third quartiles of the data. 2, 5, 7, 2, 4, 9, 7, 4, 2

(A) 5,12   (B) 7,9

(C) 5,10   (D) none of these

(x) Two regresion lines are $2x + 3y – 4 = 0$ and $x + 2y + 6 = 0$. The co-relation coefficient between x and y is

(A) 3/4   (B) 4/3

(C) – 3/4   (D) – 4/3

(xi) The GM of 3, 12 and 48 is

(A) 12 (B) 9

(C) 6 (D) none of these

(xii) The highest point of frequency curve

(A) mean (B) median

(C) both (A) and (B) (D) none of these

GROUP B
(Short Answer Type Questions)

Answer any *three* questions. $3 \times 5 = 15$

2. Calculate mean deviation from median and its coefficient from the following data:

Class Interval	Frequency
50-70	4
70-90	8
90-110	11
110-130	20
130-150	9
150-170	7
170-190	4
190-210	1

3. The content 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 and standard deviation of the combined group.

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4. Draw a more than ogive from the following frequency distribution

Wages (Rs.)	10-20	20-30	30-40	40-50	50-60	60-70	70-80
No. of Employees	8	12	17	22	25	7	3

5. Given coefficient of skewness = 0.233, mean = 39 and median = 42. Find the standard deviation.

6. Two regression equations concerning two variables x and y, $y = 5 - 2x$ and $x = 10 - y$ have intersected. Obtain the mean values of x and y and the correlation coefficient.

GROUP C
(Long Answer Type Questions)

Answer any *three* questions. 3×15 = 45

7. (a) Draw an Ogive from the following distribution: 5

Age (in years)	60-62	63-65	66-68	69-71	72-74
No. of persons	15	54	26	81	24

(b) The correlation coefficient of bivariate X and Y is 0.60. Variance of X and Y are 2.25 and 4.00 respectively. The mean of X and Y are 10 and 20 respectively. From these data find the regression lines of Y on X. 5

(c) The mean and s.d. of a sample of 100 observations were calculated as 40 and 5.1 respectively, by a student who mistake only took one observation as 50 instead of 40. Calculate the correct mean and s.d. 5

8. (a) The table below gives the figures of production of a commodity during the years 2008 – 2012 in the state of West Bengal. 8

Year	2008	2009	2010	2011	2012
Production (`000 tons):	28	38	46	40	56

(i) Fit a straight line by the method of least square.

(ii) Find the value of slope / gradient.

(iii) What will be production in 2013.

(b) Distinguish between Primary data and Secondary data.   3

(c) Two variables x and y are related by the relations   4
$3y - 2x = 7$. If the Q.D. of x is 3 find the Q.D. of y.

9. (a) Find (i) Inter Quartile Range and   7
(ii) Quartile Deviation for the following distribution:

Class Interval	0-15	15-30	30-45	45-60	60-75	75-90	90-105
Frequency	7	25	30	45	20	18	5

(b) The table below gives the diastolic blood pressure of 250 men. The readings   8
were made to the nearest millimeter and the central value of each group is
given:

Blood Presure (mm)	60	65	70	75	80	85	90	91
Number of men	4	5	31	39	114	30	25	2

Calculate the mean and the median from the above data.

10.(a) Discuss about the steps to construct a "Cost of Living Index".   5

(b) Calculate the Cost of Living Index from the data given below   5

Group	Index	Weight
Food	340	60
Clothing	310	5
Fuel & Electricity	220	8
Rent and Rates	150	9
Miscellaneous	300	18

(c) The Cost of Living Index number for a certain city in two years 2000 and   5
2010 are 220 and 288 respectively. Mr. Rajan was getting Rs. 9000 per
month in the year 2000 and Rs. 11,000 in the year 2010. Should he receive
an extra allowance in 2010 to maintain his standard of living of 2000; and if
so, how much?

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11.(a) For a batch of 10 boys, the mean and S.D. of weight are found to 50 kg and 5 kg respectively. On further verification it is detected that the weights of 2 boys have been wrongly included as 45 kg and 55 kg instead of the actual values 42 kg and 48 kg. Calculate the correct mean and correct S.D.   10

(b) What do you mean by tine series? Explain the different components of such a series.   5