Name : .....

Roll No. : .....

Invigilator's Signature : .....

CS/BBA(H),BIRM,BSCM/SEM-1/BBA-103/2012-13

2012

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) Standard Deviation is dependent on

a) origin only b) scale only

c) both (a) & (b) d) none of these.

ii) The G.M. of 3, 12 and 48 is

a) 12 b) 9

c) 6 d) none of these.

iii) Correlation coefficient lies between

a) – 1 to + 1 b) 0 to 1

c) 1 to 2 d) none of these.

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

a) 30% b) 20%

c) 19·5% d) none of these.

v) The price index of the base year considered as

a) 200 b) 10

c) 1000 d) 100.

vi) A.M. of 1, 2, 3, ... m is

a) $m/2$ b) $(m + 1)/2$

c) $(m - 1)/2$ d) none of these.

vii) For perfect positive correlation

a) $r \pm 1$ b) $r = 0$

c) $r = + 1$ d) $r = - 1$.

viii) A component of time series which records short term periodic movement, where period is not longer than one year is

a) Secular Trend b) Seasonal variation

c) Cyclical variation d) Irregular variation.

ix) At the point of intersection of the two ogives we get

a) mean b) median

c) mode d) none of these.

x) Mean deviation is a measure of

a) Central tendency

b) Dispersion

c) Both (a) & (b)

d) none of these.

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

a) Negative b) Positive

c) Zero d) none of these.

xii) The range of the values 40, 51, 47, 39, 60, 64, 57 is

a) 25 b) 35

c) 45 d) none of these.

GROUP – B
(Short Answer Type Questions)

Answer any *three* of the following. 3 × 5 = 15

2. a) Define primary data and secondary data with examples.

   b) What is the relation between A.M., G.M. and H.M. of *n* observations. 4 + 1

3. Following data on the mode of transport people use to get to their workplace were obtained from a survey of 100 office-goers in a city.

Auto	***Bus***	***Train***	***Taxi***	***Private Car***
24	22	25	15	14

   Draw an appropriate bar diagram for the above data.

4. What is the relation between mean, median and mode.

   Find mode of the following data :

Monthly income (Rs.)	1000-1500	1500-2000	2000-2500	2500-3000	3000-3500	3500-4000
No. of Workers :	30	50	75	68	43	24

5. Calculate the S.D. from the following table :

Marks	0 – 10	10 – 20	20 – 30	30 – 40	40 – 50	50 – 60
No. of students	10	20	30	40	50	30

6. What do you understand by 'Secular Trend' in the analysis of a time series ? Explain with examples.

GROUP – C
(Long Answer Type Questions)

Answer any *three* of the following. 3 × 15 = 45

7. The data below given is the marks secured by 70 candidate in a certain examination :

21	31	35	52	64	74	89	53	42	7
22	35	43	67	76	35	46	26	32	40
72	43	38	41	63	71	28	32	45	54
15	18	52	73	86	50	39	55	47	12
44	58	67	85	39	40	50	65	72	69
57	63	5	56	79	37	24	54	82	49
51	54	68	29	34	44	58	62	59	65

a) Construct a frequency distribution of the marks, taking classes of uniform width of 10 marks and '0' as the lower limit of the lower-most class.

b) Find cumulative frequency of both less than and more than type and draw ogive from this frequency bistribution. 5 + 10

8. a) The following table gives the prices and quanties of a number of commodities in Kolkata. Compute index numbers of prices for 1984 with 1979 as base year using Laspeyre's and Paasche's formulae.

Commodity	***Unit***	**1979**		**1984**	
		Price (Rs.)	***Quantity***	***Price (Rs.)***	***Quantity***
Rice	kg	8	4	10	8
Ghee	kg	25	2	29.50	3
Egg	dozen	5	5	6.50	6
Milk	liter	2	3	4	7

b) The ranks of same 16 students in Mathematics and Physics ar as follows. Two numbers within brackets denote the ranks of the students in Mathematics and Physics :

(1, 1) (2, 10) (3, 3) (4, 4) (5, 5) 6, 7) (7, 2) (8, 6) (9, 8) (10, 11) (11, 15) (12, 9) (13, 14) (14, 12) (15, 16) 16, 13) .

Calcualate the rank coefficient for proficiencies of this group in Mathematics and Physics. 8 + 7

9. a) Find the regression line of Y when X is an independent variable from the following data : 7

Y	18	20	25	28	30	24	15	25
X	25	22	28	26	35	20	15	10

Estimate the value of Y when X is 45 from the above regression line.

b) Calculate Quartile Deviation and its coefficient from the following table : 8

Salary (Rs.)	4-8	8-12	12-16	16-20	20-24	24-28	28-32	32-36	36-40
No. of Workers	6	10	18	30	15	12	10	6	2

10. a) The weights (in kg) of 6 persons are 64, 60, 60, 64, 60 and 64. Calculate the mean deviation about mean.

b) Fit a trend equation to the following data by the method of least squares.

Year :	1975	1976	1977	1978	1979
Production :	83	92	71	90	169

Estimate also the production for 1980. 5 + 10

11. a) If the two regression lines are $3y + 9x = 46$ and $3x + 12y = 19$, determine which one of these is the regression lines y on x and which one is that of x on y. Also, find the means, correlation coefficient and the ratio of variance.

b) For a moderately skewed distribution, mean = 10, C.V. = 35%, coefficeint of skewness = 0.2, find the median and mode of the distribution. 9 + 6