

Name :

Roll No. :

Invigilator's Signature :

CS/BBA(H), BSCM, BIRM/SEM-1/BBA-103/2011-12

2011

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.

Graph sheet(s) will be supplied by the institution.

GROUP – A

(Multiple Choice Type Questions)

1. Choose the correct alternatives for any *ten* of the following :

10 × 1 = 10

- i) Population census undertaken by Indian Govt. is an example of
 - a) sample survey
 - b) complete enumeration
 - c) marketing research
 - d) none of these.

- ii) What is the best measure of central tendency ?
 - a) Mean
 - b) Median
 - c) Mode
 - d) None of these.



- iii) For the given set of observations 7, 8, 9, 9 and 17
- a) mean is greater than median
 - b) mode is greater than mean
 - c) median is greater than mode
 - d) none of these.
- iv) The mode of the following data : 5, 3, 9, 11, 6, 2, 6 is
- a) 6
 - b) 9
 - c) 11
 - d) none of these.
- v) S.D. is independent of but dependent on
- a) time, scale
 - b) origin, scale
 - c) scale, origin
 - d) none of these.
- vi) The value of first central moment is
- a) 0
 - b) 1
 - c) 2
 - d) none of these.
- vii) A relative frequency distribution presents frequencies in terms of
- a) fractions
 - b) whole numbers
 - c) percentages
 - d) both (a) and (c).

**GROUP – B****(Short Answer Type Questions)**Answer any *three* of the following. $3 \times 5 = 15$

2. Construct a histogram for the following data :

Class	Frequency
0 – 10	4
10 – 20	6
20 – 30	7
30 – 40	14
40 – 50	16
50 – 60	14
60 – 70	8
70 – 80	16
80 – 90	5

3. The average monthly salary paid to all employees in a company was Rs. 8,000. The average monthly salaries paid to male and female employees of the company were Rs. 10,600 and Rs. 7,500 respectively. Find out the percentages of males and females employed by the company.
4. The correlation coefficient of bivariate X and Y (r) = 0.60, variance of X and Y are 2.25 and 4.00 respectively, $\bar{X} = 10$, $\bar{Y} = 20$.

From the above data find regression lines of "Y on X".



5. If $3x + 4y = 5$ and MD of x about mean is 8 find the mean deviation of y about its mean.
6. What do you mean by a time series ? Explain the different components of such a series.

GROUP – C

(Long Answer Type Questions)

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

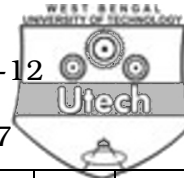
7. a) The mean and variance from a group of 80 observations are 63.2 and 25.93 respectively. If 60 of these observations have mean = 64.8 and SD = 4, find mean and SD of the remaining 20.
- b) Given coefficient of skewness = -0.475 , mean = 64 and median = 66. Find the S.D.
- c) The scores of two batsmen A and B in 19 innings are as follows :

A	32	28	47	63	71	39	10	60	96	14
B	19	31	48	53	67	90	10	62	40	80

State which batsman is more consistent.

8. a) What is pie-chart ? Draw a pie-chart to represent the following data related to the production cost of a manufacturer :

Production cost	Rs.
Cost of material	9,600
Cost of labour	7,680
Direct expenses of manufacturer	2,880
Factory overhead expenses	3,840



b) A.M. of the following distribution is 56.47

Daily wages (Rs.)	45	50	55	60	65	70	75	Total
Frequency	5	48	?	30	?	8	6	150

- i) Find the missing frequencies
 - ii) Find the mode.
- c) Prove that Fisher's index number will satisfy both Time Reversal and Factor Reversal tests.

9. From the data given below find —

- a) the two regression equations
- b) the coefficient of correlation between marks in Economics & Statistics
- 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

10. a) An incomplete frequency distribution is given below :

Height (inches)	20-29	30-39	40-49	50-59	60-69	70-79	80-89	90-99	Total
No. of plants	2	12	15	?	18	?	9	4	90

It is known that the median height of the plant is 57.5 inches. Calculate the missing frequency.



- b) Write short notes on skewness and kurtosis of a frequency distribution.
- c) Construct the C.L.I. from the following data :

Group	Food	Garments	Fuel	Rent	Misc.
Index no.	414	373	200	100	400
Weight	31	18	24	12	10

11. a) The coefficient of rank correlation of the ranks obtained by 10 students in Statistics and Economics was found to be 0.5. It was later found that the difference in marks in two subjects obtained by one of the students was wrongly taken as 5 instead of 6. Find the correct rank correlation coefficient.
- b) The following results are obtained from records of age (X) and systolic blood pressure (Y) of a group of 10 women :

	X	Y
Mean	53	142
Variance	130	165

$$(x - \bar{x})(y - \bar{y}) = 1220$$

Find the appropriate regression equation and use it to estimate the blood pressure of a woman whose age is 48.

- c) What do you mean by cost of living index number ? Mention the use of it.