QUESTION 2011

Group – A
(Multiple Choice Type Questions)

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

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) & (c)

viii) Two regression lines are $2x+3y-4=0$ and $x+2y+6=0$. Then correlation coefficient between x and y is

a) $-\frac{3}{4}$
b) $\frac{3}{4}$
c) $\frac{4}{3}$
d) $-\frac{4}{3}$

No alternative. (wrong question)

ix) Which index number is known as an ideal index number?

a) Laspeyre's index number
b) Paasche's index
✓c) Fisher's index
d) None of these

x) If $r=+1$, the two regression lines become

✓a) coincident
b) parallel
c) perpendicular
d) either (b) or (c)

xi) 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

xii) If $r=0.6$, $\text{cov}(x, y)=12$ and S.D. of $y=5$, then S.D. of x is

a) 3
✓b) 4
c) 5
d) none of these

Group – B
(Short Answer Type Questions)

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

See Topic: FREQUENCY DISTRIBUTION, Short Answer Type Question No. 2.

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.
See Topic: MEASURES OF CENTRAL TENDENCY, Short Answer Type Question No. 9.

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".
See Topic: CORRELATIVE ANALYSIS, Short Answer Type Question No. 4.

5. If $3x + 4y = 5$ and MD of x about mean is 8 find the mean deviation of y about its mean.
See Topic: MEASURES OF CENTRAL TENDENCY, Short Answer Type Question No. 10.

6. What do you mean by a time series? Explain the different components of such a series.
See Topic: TIME SERIES ANALYSIS, Short Answer Type Question No. 1.

Group – C
(Long Answer Type Questions)

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
See Topic: MEASURES OF VARIATIONS, Long Answer Type Question No. 12.

b) Given coefficient of skewness = –0.475, mean = 64 and median = 66. Find the S.D.
See Topic: MOMENTS, SKEWNESS AND KURTOSIS, Long Answer Type Question No. 2.

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.

See Topic: MEASURES OF VARIATIONS, Long Answer Type Question No. 13.

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

See Topic: COLLECTION AND PRESENTATION OF DATA, Long Answer Type Question No. 2.

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.

See Topic: MEASURES OF CENTRAL TENDENCY, Long Answer Type Question No. 11.

c) Prove that Fisher's index number will satisfy both Time Reversal and Factory Reversal tests.

See Topic: INDEX NUMBER, Long Answer Type Question No. 7.

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

See Topic: CORRELATIVE ANALYSIS, Long Answer Type Question No. 9.

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.

See Topic: MEASURES OF CENTRAL TENDENCY, Long Answer Type Question No. 12.

b) Write short notes on skewness and kurtosis of a frequency distribution.

See Topic: MOMENTS, SKEWNESS AND KURTOSIS, Long Answer Type Question No. 3.

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

See Topic: INDEX NUMBER, Long Answer Type Question No. 8.

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.

See Topic: CORRELATIVE ANALYSIS, Long Answer Type Question No. 10.

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

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

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

See Topic: CORRELATIVE ANALYSIS, Long Answer Type Question No. 11.

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

See Topic: INDEX NUMBER, Long Answer Type Question No. 9.