LOYOLA COLLEGE (AUTONOMOUS), CHENNAI – 600 034

B.Sc. DEGREE EXAMINATION – **STATISTICS**

SECOND SEMESTER – **APRIL 2014**

ST 2105 - FUNDAMENTALS OF STATISTICS

Date : 15/04/2014 Dept. No. Max. : 100 Marks

Time : 01:00-04:00

SECTION A

Answer ALL questions. **(10 x 2 = 20 marks)**

1. Discuss the functions of statistics.
2. State the merits and demerits of geometric mean
3. Distinguish between primary data and secondary data.
4. Explain any two types of diagram to represent the data.
5. Calculate median for the following data:

   3, 6 , 24, 48
6. Define measures of skewness.
7. Calculate Range and Coefficient of Range for the following data

   25, 36, 45, 55, 60, 52, 40
8. In a moderately a symmetrical distribution, mean = 65, median = 70 and coefficient of skewness

   is – 0.6 .Find mode.
9. Define positive and negative correlation.
10. What is meant by seasonal variation?

SECTION B **(5 X 8 = 40 Marks)**

Answer any FIVE questions

11. Explain briefly the uses of various diagrams in presenting statistical data.
12. Below is given the frequency distribution of marks in statistics obtained by 120 students in a class. Determine the Ogive for this distribution and use it to determine the median.

Marks	10 – 19	20 – 29	30 – 39	40 – 49	50 – 59	60 – 69	70 – 79	80 – 89
No. of students	9	12	15	20	18	22	10	14

13. Calculate median for the following data:

Marks	0-10	10-20	20-30	30-40	40-50	50-60	60-70	70-80	80-90	90-100
No of students	10	12	13	11	20	14	16	17	15	7

14. Compute mean deviation about median from the following frequency distribution.

Class interval	0-10	10-20	20-30	30-40	40-50	50-60	60-70	70 - 80
Frequency	18	16	15	12	10	5	2	2

15. Two samples of sizes 40 and 50 respectively have the same mean 53 but different standard deviations 19 and 8 respectively.find combined mean and standard deviation.

16. Calculate the rank correlation coefficient from the following data:

Ranks of x	1	2	3	4	5	6	7	8	9	10
Ranks of y	1	4	2	5	3	9	7	10	6	8

17. Using three year moving averages determine the trend and short term fluctuations:

Year	2001	2002	2003	2004	2005	2006	2007
Production	50	46	42	49	52	40	54

18. Fit a straight line trend by the method of Least Squares for the following data: Also estimate the sales for the year 1991.

Year	1983	1984	1985	1986	1987	1988
Sales(Rs. in Lakhs)	3	8	7	9	11	14

SECTION C **(2 X 20 = 40 Marks)**

Answer any TWO questions

19.(a) Calculate Mean, Median and Mode and verify empirical relation:

Class Interval	1 – 10	11 – 20	21 – 30	31 – 40	41 - 50	51 – 60	61 – 70	71 – 80
Frequency	8	7	6	12	1	3	5	2

(10)

19.(b) Calculate Bowley's coefficient of skewness from the following data:

Marks	0 – 10	10 – 20	20 – 30	30 – 40	40 – 50	50 – 60	60 – 70	70 – 80
No. of persons	12	14	20	15	13	10	11	7

(10)

20. (a) Calculate standard deviation following data:

Class Interval	10- 15	15 – 20	20 - 25	25 – 30	30 – 35	35 – 40
Frequency	2	8	20	35	20	15

(10)

20.(b) scores of two batsmen A and B in 10 innings during a certain season are:

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

i) Who is the better scorer A or B? ii) Who is the most consistent player?

(10)

21.(a) Calculate Karl Pearson`s coefficient of correlation from the following data:

Demand (kg)	10	12	13	16	17	20	25	140
Price (Rs.)	19	22	26	27	29	33	35	40

(10)

21.(b) Calculate the Regression Equations of X on Y from the following data and estimate X when Y = 26.

X	10	12	13	17	18	20	24	30
Y	5	6	7	9	13	15	20	21

(10)

22. Calculate Seasonal Indices by the Ratio-To-Moving Average Method from the following data:

Year / Quarter	2006	2007	2008	2009
I	22	26	30	49
II	50	35	20	70
III	25	60	51	53
IV	49	50	40	48

(20)