

LOYOLA COLLEGE (AUTONOMOUS), CHENNAI – 600 034



B.Sc. DEGREE EXAMINATION – BUS. ADMIN. & CORP. SEC.

SECOND SEMESTER – APRIL 2013

ST 2105 - FUNDAMENTALS OF STATISTICS

Date : 06/05/2013
Time : 9:00 - 12:00

Dept. No.

Max. : 100 Marks

SECTION A

Answer ALL questions.

(10 x 2 = 20 Marks)

1. Describe the scope of statistics.
2. Define secondary data and state its chief sources.
3. Define sampling and state its principles.
4. What are the objectives of classification?
5. Explain the advantages of graphical representation.
6. Calculate geometric mean from the following data:
2 4 8 12 16 24
7. What is a measure of dispersion?
8. What is positive and negative Skewness?
9. Indicate the importance of “Time Series Analysis” in business.
10. Define trend and seasonal variation.

SECTION B

(5 X 8 = 40 Marks)

Answer any FIVE questions

11. Explain the different types of Probability sampling Techniques.

12. Discuss the importance and scope of Statistics.

13. Calculate median from the following data:

Marks	0-10	10-30	30-60	60-80	80-90
No. of students	5	15	30	8	2

14. Compute coefficient of quartile deviation for the following data:

Marks	10	20	30	40	50	60
No. of students	4	7	15	8	7	2

15. The mean and the standard deviation of one sample are respectively 54.4 and 8; the mean and the standard Deviation of another sample are 50.3 and 7 respectively. The size of the first sample is 50 and that of the Second is 100. Find the mean and standard deviation of the combined sample

16. Calculate Spearman's coefficient of correlation between marks assigned to ten students by judges X and Y in a certain competitive test as shown below:

S.No	1	2	3	4	5	6	7	8	9	10
Marks by judge X	52	53	42	60	45	41	37	38	25	27
Marks by judge Y	65	68	43	38	77	48	35	30	25	50

17. Using three-years moving averages determine the trend and short-time fluctuations. Plot the original and Trend values on the same graph.

Year	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
Production	21	22	23	25	24	22	25	26	27	23

18. From the following data find the equation of linear trend using least squares method and estimate the value of 1994.

Year	1998	1999	2000	2001	2002	2003	2004
Labour force (million)	79	81	83	86	81	89	89

SECTION C

(2 X 20 = 40 Marks)

Answer any TWO questions

19.(a) Find the median for the following data using ogives.

Weight (in kg)	40-45	45-50	50-55	55-60	60-65	65-70	70-75	75-80
No. of students	5	17	22	45	51	31	20	9

(b) Calculate arithmetic mean, median and mode from the following frequency distribution:

Variable	10 - 13	13 - 16	16 - 19	19 - 22	22 - 25	25 - 28	28 - 31	31 - 34	34 - 37	37 - 40
Frequency	8	15	27	51	75	54	36	18	9	7

(10 + 10)

20.(a) Find the standard deviation and coefficient of variation for the given data:

C.I	0-5	5-10	10-15	15-20	20-25	25-30	30-35	35-40
F	2	5	7	15	21	16	8	3

(b) A student obtained the mean and standard deviation of 100 observations as 40 and 5.1 respectively. It was later found that one observation was wrongly copied as 50 the correct figure being 40. Find the Correct mean and standard deviation. (10 + 10)

21.(a) Calculate the Karl Pearson's Coefficient of Correlation between Supply and Demand:

Year	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Supply	125	160	164	174	155	170	165	162	172	175
Demand	115	125	192	190	165	174	124	127	152	169

(b) Calculate the regression equation of X on Y and Y on X 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 + 10)

22. Composite seasonal indices by the Ratio to Moving Average method from the following data:

Year	1 st Quarter	2 nd Quarter	3 rd Quarter	4 th Quarter
2001	75	60	54	59
2002	86	65	63	80
2003	90	72	66	85
2004	100	78	72	93

(20)
