



LOYOLA COLLEGE (AUTONOMOUS), CHENNAI – 600 034

B.Sc. DEGREE EXAMINATION – STATISTICS

THIRD SEMESTER – APRIL 2014

ST 3105 - INTRODUCTION TO STATISTICS

Date : 05/04/2014
Time : 09:00-12:00

Dept. No.

Max. : 100 Marks

SECTION - A

Answer ALL questions.

(10 x 2 = 20 marks)

1. Name any three non-probability sampling techniques
2. What is the purpose of classification of data?
3. Write short notes on frequency polygon?
4. Define skewness
5. Find the arithmetic mean of the following data:
20, 22, 23, 19, 18
6. Calculate range and coefficient of range for the following data:
61, 62, 63, 64, 65, 66, 67, 68
7. State the properties of correlation coefficient.
8. What are the components of time series?
9. Define the theory of attributes?

SECTION - B

(5 X 8 = 40 Marks)

Answer any FIVE questions

- 11.(a) Differentiate between classification and tabulation..
(b) Differentiate between random sampling and quota sampling.
12. Draw a histogram and frequency polygon on the basis of the following data:

Marks	21-30	31-40	41-50	51-60	61-70	71-80	81-90	91-100
No.of students	4	6	8	12	10	7	5	3

13. The mean height of 35 male workers in a factory is 714 cm. And the mean height of 25 female workers in the same factory is 68 cm. Find the combined mean height of 60 workers in the factory.
14. Calculate the Mean Deviation about the mean for the following data:

x	2	3	4	5	6	7
f	1	5	8	4	2	1
15. Compute the first four central moments for the following data:
8, 10, 11, 12, 14.
16. Find the correlation coefficient between production and sales of a factory from the data given below:

Production(in tones)	10	12	15	13	18	20	11	9	7	9
Sales (in Rs.lakhs)	7	9	10	6	11	8	13	12	5	7

17. Fit a straight line trend equation by the method of least square and estimate the trend values from the following data:

Year	2001	2002	2003	2004	2005	2006
Value	23	26	24	28	27	25

18. 400 Candidates appeared for a competitive examination and 120 of them succeeded. 70 received special coaching and out of them 40 candidates succeeded. Prepare a 2 x 2 contingency table and using Yule's coefficient, discuss whether special coaching is effective or not.

SECTION - C

(2 X 20 = 40 Marks)

Answer any TWO questions

19.(a) Calculate the mean, median and mode from the following data:

Marks	10 – 20	20 – 30	30 – 40	40 – 50	50 – 60	60 – 70	70 – 80	80 – 90
No. of students	6	10	7	23	14	18	22	10

(10)

19.(b) From the following data compute Bowley's coefficient of skewness.

Daily wages(Rs.)	100-150	150-200	200-250	250-300	300-350	350-400	400-450	450-500
No. of persons	22	30	38	32	28	24	20	10

(10)

20.(a) Calculate standard deviation from the following data:

Class Interval	0 – 10	10 – 20	20 – 30	30 – 40	40 – 50	50 – 60
Frequency	10	12	14	16	13	15

(10)

20.(b) Two judges in a beauty competition rank the 12 entries as follows :

X	1	2	3	4	5	6	7	8	9	10	11	12
Y	12	9	6	10	3	5	4	7	8	2	11	1

What degree of agreement is there between the judgment of the two judges ?

(10)

21. The following table gives the aptitude test scores and productivity indices of 10 workers selected at random.

Aptitude scores(x)	95	98	96	92	90	92	89	88	93	95
Productivity index(y)	98	94	89	88	94	93	90	92	85	86

Find the two regression equations and estimate:

(i) the productivity index of a worker whose test score is 95

(ii) the test score of a worker whose productivity index is 90

(20)

22. Calculate the seasonal indices by the ratio to moving average method.

Wheat Prices (in rupees quintal)

Quarter/Year	2001	2002	2003	2004
Quarter I	28	33	32	35
Quarter II	30	34	35	36
Quarter III	32	32	34	34
Quarter IV	35	36	37	40

(20)