



LOYOLA COLLEGE (AUTONOMOUS), CHENNAI – 600 034

B.Sc. DEGREE EXAMINATION – STATISTICS

THIRD SEMESTER – APRIL 2014

ST 3104 - BUSINESS 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. What are the advantages of classification of data?
2. Write a note on misuse of statistics.
3. What is weighted arithmetic mean?
4. Find the median from the following data:
35, 36, 32, 34, 35, 36, 39
5. What are the measures of skewness?
6. Calculate Range and Coefficient of Range for the following data
35, 40, 52, 29, 51, 46, 27, 30, 30, 23
7. Pearson's coefficient of skewness is -0.7 and the value of the median and S.D. are 12.8 and 6 respectively. Determine the value of the mean.
8. What are the types of correlation?
9. State the merits of Index numbers.
10. Explain the nature of the operation research.

SECTION B

Answer any FIVE questions

(5 X 8 = 40 Marks)

11. Distinguish between primary data and secondary data.
12. Below is given the frequency distribution of marks in statistics obtained by 100 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	16

13. Calculate the Mean Deviation about the mean and about the median for the following data:

15, 25, 32, 46, 80, 95, 98

14. From the under mentioned details, calculate standard deviation:

Marks	10	20	30	40	50	60
No. of students	8	12	20	10	7	3

15 .Find the Rank Correlation coefficient from the following data:

Sl. No.	1	2	3	4	5	6	7	8	9	10
Ranks in Statistics	1	2	3	4	5	6	7	8	9	10
Ranks in Maths	2	4	1	5	3	9	7	10	6	8

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

Year	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Production	26	28	30	35	34	36	37	32	38	33

17. Calculate Laspeyre's Index number, Paasche's price index number and Marshall-Edgeworth Index and verify whether they satisfy time reversal test and Factor reversal test.

Commodity	2005		2006	
	Price (in Rs.)	Quantity (in kgs.)	Price (in Rs.)	Quantity (in kgs.)
A	6	60	16	70
B	4	120	15	140
C	5	80	10	100
D	12	40	14	50
E	10	50	18	80

18. Use the graphical method to solve the following L.P problem.

$$\text{Maximize } Z=5x+3y$$

Subject to the constraints,

$$4x + 5y \leq 10$$

$$5x + 2y \leq 10$$

$$3x + 8y \leq 12$$

$$x, y \geq 0$$

SECTION C**Answer any TWO questions****(2 X 20 = 40 Marks)**

19. a) 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	10	15	25	16	14	30	13	7

(10)

19. b) The scores of two players A and B in 12 rounds are given below:

A	83	85	80	85	84	87	89	97	95	94	92	91
B	87	89	85	91	92	94	96	82	86	81	86	83

Identify the better player and the more consistent player?

(10)

20. Calculate the value of β_1 and β_2 from the following data and interpret them.

Wages(Rs .hundreds)	100 -200	200 -300	300 – 400	400 – 500	500 – 600
No. of workers	10	15	12	8	7

(20)

21. In a partially destroyed laboratory record of an analysis of correlation data, the following results

were obtained. Variance of X = 25

Regression equation .

$$Y=X+6$$

$$14X=10Y- 85$$

Find (i) the mean value of X and Y.

(ii) the coefficient of correlation between X and Y.

(iii) the variance of Y

(20)

22. Obtain the initial basic feasible solution for the transportation problem by using (i) North West Corner method (ii) Least Cost method (iii) Vogel's Approximation method

	D ₁	D ₂	D ₃	D ₄	D ₅	Availability
A ₁	9	10	12	14	10	150
A ₂	10	12	15	20	14	250
A ₃	12	13	14	16	15	100
Demand	125	100	115	90	70	

(20)
