



LOYOLA COLLEGE (AUTONOMOUS), CHENNAI – 600 034

B.Com. DEGREE EXAMINATION – COMMERCE

SECOND SEMESTER – APRIL 2015

BC 2104 - BUSINESS STATISTICS

Date : 20/04/2015

Dept. No.

Max. : 100 Marks

Time : 01:00-04:00

Answer ALL questions.

SECTION A

(10 x 2 = 20 marks)

1. Discuss the merit of median.
2. The mean of 200 items is 60 later on it was discovered that 182 one of the item was wrongly taken as 82, find the correct mean.
3. What are the various measures of dispersion?
4. The Karl Pearson's coefficient of skewness of a distribution is 0.32. The S.D. is 6.5 and Mean is 29. Find Mode.
5. Define the Karl Pearson's coefficient of correlation.
6. What are the components of time series?
7. State any two definitions of operations research.
8. What are the limitations of operations research?
9. Write down the matrix form of the transportation problem.
10. Define pure strategy and mixed strategy to a game.

Answer any FOUR questions:

SECTION B

(4 X 10 = 40 Marks)

11. Calculate the mean, median and mode from the following data and verify the empirical relationship.

C.I	1-10	11-20	21-30	31-40	41-50
F	4	7	12	6	5

12. Calculate Standard Deviation from the following data:

Class Interval	0 – 10	10 – 20	20 – 30	30 – 40	40 – 50	50 – 60
Frequency	8	11	16	12	9	4

13. Calculate the quartile deviation for the following data:

X	20	23	24	25	26	30
F	6	10	7	4	5	3

14. Ten competitors in a beauty contest are ranked by three judges in the following order:

Judge 1	1	6	5	10	3	2	4	9	7	8
Judge 2	3	5	8	4	7	10	2	1	6	9
Judge 3	6	4	9	8	1	2	3	10	5	7

Use the rank correlation coefficient to determine which pair of judges has the nearest approach to common tastes in beauty

15. Define time series. Explain the importance of analysis of time series.
16. What are the characteristic of operation research?
17. Obtain the initial basic feasible solution of the transportation problem by using Vogel's Approximation Method (VAM).

	D ₁	D ₂	D ₃	D ₄	Availability
A ₁	10	18	11	7	20
A ₂	9	12	14	6	40
A ₃	8	9	12	10	35

Demand	16	18	31	30	95
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SECTION C

Answer any TWO questions:

(2 X 20 = 40 Marks)

18. Calculate Skewness and kurtosis by the method of moments for the following distribution and interpret them.

Daily wages(Rs.)	100-120	120 – 140	140 – 160	160 – 180	180 – 200	200 – 220	220 - 240
No. of workers	1	3	7	20	12	4	3

(20)

19. In a partially destroyed laboratory record of an analysis of correlated data, the following results were obtained:

Variance of X = 9 Regression Equations $Y = X + 5$ and $16X = 9Y - 94$

Find (i) the mean values of X and Y

(ii) the coefficient of correlation between X and Y

(iii) the variance of Y

(20)

20. a) Fit a straight line trend equation by the method of least squares and estimate the trend values from the following data:

Year	2001	2002	2003	2004	2005	2006
Value	21	20	22	25	23	24

(10)

b) Calculate Seasonal Indices from the following data using Simple Average Method:

Year \ Quarter	1974	1975	1976	1977
I	72	76	74	76
II	68	70	66	74
III	80	82	84	84
IV	70	74	80	78

(10)

21. (a) Use the graphical method to solve the following LPP.

Maximize $Z = 5x + 7y$

Subject to constraints,

$$x + y \leq 4$$

$$3x + 8y \leq 24$$

$$10x + 7y \leq 35$$

$$x, y \geq 0$$

(10)

(b)) solve the following game, using dominance rule

		Player A		
		A ₁	A ₂	A ₃
Player B	B ₁	2	3	4
	B ₂	4	5	3
	B ₃	6	4	7

(10)