LOYOLA COLLEGE (AUTONOMOUS), CHENNAI – 600 034

B.A. DEGREE EXAMINATION – **ECONOMICS**

SECOND SEMESTER – **APRIL 2016**

ST 2102 - BUSINESS STATISTICS

Date: 26-04-2016 Dept. No. Max. : 100 Marks
Time: 01:00-04:00

SECTION A

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

1. State the various methods of collecting secondary data..
2. What is the general rule to be followed in tabulation?
3. Define the term harmonic mean,
4. Calculate median for the following data:27,36,28,18,35,26,20,35,40,26
5. Define kurtosis.
6. Calculate mean deviation about mean for the following data:18,20,12,14,19,22,26,16,19,24
7. State any two properties of correlation coefficients.
8. What are the components of time series?
9. What are the uses of index numbers?
10. Define operations research.

SECTION B

Answer any FIVE questions **(5 X 8 = 40 Marks)**

11. What are the types of classifications? Explain.

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	20 - 29	30 - 39	40 – 49	50 – 59	60 – 69	70 – 79	80 - 89	90 – 99
No. of students	8	10	25	31	11	12	2	1

13. The following is the age distribution. Calculate the Arithmetic Mean.

Age	20 – 25	25 – 30	30 – 35	35 – 40	40 – 45	45 – 50
No of persons	110	110	80	45	40	35

14. Calculate the harmonic mean from the following data

x :	10	12	14	16	18	20
f :	5	18	20	10	6	1

15. Calculate Karl Pearson`s coefficient of correlation from the following data:

Demand (kg)	84	78	70	75	66	67	62	58	60
Price (Rs.)	14	16	17	18	19	20	21	22	23

16. Using 1964 as the origin, obtain a straight line trend equation by the method of least squares.

Year	1960	1962	1963	1964	1965	1966	1969
Value	140	144	160	152	168	176	180

Find the trend value of the missing year 1961

17. Construct the cost of living index number from the following group data:

Group	Weights	Current year price	Base year price
Food	4	47	30
Fuel and light	2	12	8
Clothing	3	18	14
House rent	2	15	22
Miscellaneous	1	30	25

18. Use the graphical method to solve the following LPP.

Maximize $Z = 5x + 7y$

Subject to constraints,

$12x + 12y \leq 840$

$3x + 6y \leq 300$

$8x + 4y \leq 480$

$x, y \geq 0$

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SECTION C

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

19.(a) Find the mean, median and mode from the following frequency distribution.

Marks	0 - 10	10 - 20	20-30	30- 40	40-50	50-60	60- 70	70 - 80
No. of students	14	28	33	30	20	15	13	7

(b) Find the Quartile Deviation for the following distribution

Marks	0 – 10	10 – 20	20 – 30	30 – 40	40 – 50	50 – 60	60 - 70
Frequency	8	20	34	46	28	14	10

(10 + 10)

20. Calculate the value of $\beta 1$ and $\beta 2$ 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. (a) From the following data, find the most likely production corresponding to the rainfall of 40 cm.

	Rainfall (in cm)	*Production (tonnes)*
Mean	35	50
S.D.	5	8
Correlation coefficient	0.8	

(b)Calculate the three yearly moving average of the following data and also calculate Short-term Fluctuations.

Year	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984
Production(intonnes)	50	36	43	45	39	38	33	42	41	34

(10 + 10)

22.(a) Five jobs 1, 2, 3 and 4 are to be assigned to five persons A, B, C, and D . The time taken (in minutes) by each of them on each job is given below.

	1	2	3	4
A	11	17	8	16
B	9	7	12	6
C	13	16	15	12
D	14	10	12	11

Work out the optimum assignment and the total minimum time taken

(b) Find the initial basic feasible solution by using Vogel's Approximation Method for the following Transportation problem:

	D1	D2	D3	D4	D5	Availability
A1	20	28	32	55	70	50
A2	48	36	40	44	25	100
A3	35	55	22	45	48	150
Demand	100	70	50	40	40	

(10 + 10)

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