LOYOLA COLLEGE (AUTONOMOUS), CHENNAI – 600 034

B.Sc. DEGREE EXAMINATION – **STATISTICS**

SECOND SEMESTER – **APRIL 2014**

ST 2104 - BUSINESS STATISTICS

Date : 07/04/2014 Dept. No. Max. : 100 Marks

Time : 09:00-12:00

SECTION – A

Answer All the Questions (10 x 2 = 20)

1. Write any four merits of arithmetic mean?
2. For what type of values harmonic mean suitable?
3. Define Geometric mean.
4. What is meant by skewness?
5. Give any four properties of the coefficient of correlation.
6. What do you understand by seasonal variation?
7. What are the requirements for proper analysis of a time series?
8. Provide the assumptions in Linear Programming Problem.
9. Distinguish between pure and mixed strategies.
10. Define saddle point.

SECTION –B

Answer any five questions (5 x 8 = 40)

11. The scores on a reading comprehension text of 1000 students are given below.

Scores	0-5	5-10	10-15	15-20	20-25	25-30	30-35	35-40	40-45	45-50
Frequency	6	12	50	120	225	250	185	110	32	10

Find mean and median scores.

12. Find Variance and Standard deviation for the following data.

X	10	20	30	40	50	60	70	80
f	15	30	53	75	100	110	115	125

13. The mean and variance of the marks obtained by two groups of students, consisting of 50 each are given below.

Group	Mean	Variance
1	60	64
2	55	49

Calculate the mean and standard deviation of the marks obtained by all the 100 students.

14. Find the coefficient of skewness based on quartiles for the following distribution

Income	30-40	40-50	50-60	60-70	70-80	80-90	90-100
No. of persons	8	24	48	68	30	13	9

15. Ten students got the following percentage of marks in Mathematics and Statistics

Mathematics	13	41	103	30	80	87	97	67	70	40
Statistics	89	56	96	65	73	67	91	63	40	54

Find the coefficient of rank correlation.

16. Find 3 yearly moving averages method for the following data.

Year	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990
Values	20.0	22.8	24.3	18.8	28.3	30.4	35.8	31.6	35.7	47.2	55.0	63.2	66.3	57.7

17. Solve the following problem by using graphical method.

Minimize $Z = 10X_1 + 4X_2$

Subject to
$3X_1 + 2X_2 \geq 60$
$7X_1 + 2X_2 \geq 84$
$3X_1+6X_2 \geq 72$
$X_1 \geq 0, X_2 \geq 0.$

18. Solve the following 2 x 3 game graphically

Player B

Player A $\begin{bmatrix} 1 & 3 & 11 \\ 8 & 5 & 2 \end{bmatrix}$

SECTION –C

Answer any TWO questions. (2 x 20 =40)

19. a) Following are the marks obtained by two students Deepak and Robert in ten sets of examination:

Deepak	44	80	76	48	52	72	68	56	60	64
Robert	48	75	54	60	63	69	72	51	57	56

If the consistency of performance is the criterion for awarding the prize, who should get the prize?

b) Find the skewness and kurtosis for the following data (12+8)

X	9	11	19	20	17	14

20. Find the two regression equation for the following data

X	158	160	163	165	167	170	172	175	177	181
Y	163	158	167	170	160	180	170	175	172	175

and also estimate the value of Y when X= 190.

21. Calculate seasonal indices by the link relative method from the data given below:

Year	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter
2000	60	65	62	69
2001	62	68	65	68
2002	65	70	64	62
2003	70	75	68	67
2004	72	80	70	78

22). Find the Initial Basic Feasible Solution for the following transportation problem using (i) North-west corner rule (ii) Least cost method and (iii) Vogel's approximation methods.

Factory		Warehouse					
	A	B	C	D	E	F	Available
1	9	12	9	6	9	10	5
2	7	3	7	7	5	5	6
3	6	5	9	11	3	11	2
4	6	8	11	2	2	10	9
Requirement	4	4	6	2	4	2	