LOYOLA COLLEGE (AUTONOMOUS), CHENNAI – 600 034

U.G. DEGREE EXAMINATION – **ALLIED**

SECOND SEMESTER – **APRIL 2023**

UCO 2302 – STATISTICS FOR DECISION MAKING

Date: 10-05-2023 Dept. No. Max. : 100 Marks

Time: 01:00 PM - 04:00 PM

	SECTION A - K1 (CO1)	
	Answer ALL the Questions	**(10 x 1 = 10)**
1.	**Define the following:**	
a)	Statistics	
b)	Median	
c)	Skewness	
d)	Index Numbers	
e)	Time Series	
2.	**Multiple choice questions:**	
a)	Mean, Median and Mode are known as (a) Average of Position, (b) Mathematical Average, (c) Measures of Central Tendency, (d) All of these	
b)	Mean Deviation is otherwise called as (a) Arithmetic Mean, (b) Average Deviation, (c) Dispersion, (d) None of these	
c)	In a Symmetrical distribution mean, median and mode are (a) Equal, (b) Not Equal, (c) Greater than one, (d) Lesser than one	
d)	Index number is a measure of studying the relationship between (a) Two variable, (b) Three variable, (c) Three or more variable, (d) None of these	
e)	The graphic approach to an LPP is useful because (a) It provides general way to solve linear programming problems, (b) It does not provide unbounded solution, (c) It gives geometric insight into the given problem and the meaning of optimality, (d) It provides both (a) and (c)	
	SECTION A - K2 (CO1)	
	Answer ALL the Questions	**(10 x 1 = 10)**
3.	**Fill in the blanks :**	
a)	Find the Mode of 11,13,13,17,19,23,25. …….	
b)	Find the Range for the given data:7,47,8,42,47,95,46,96,2. …….	
c)	Variance is the square of …….	
d)	…….method is the easiest method for calculating seasonal variation	
e)	Decrease in one variable influences the decrease in other variable is ……correlation	
4.	**True or False:**	
a)	Arithmetic mean is always the best measure of central tendency.	
b)	Statistics deals with aggregates of facts.	
c)	Regression coefficients are independent of change of scale and origin.	

d) The circular test is an extension of the time reversal test.

e) A basic requirement for using the transportation technique is that of total demand equals total capacity

SECTION B - K3 (CO2)

Answer any TWO of the following **(2 x 10 = 20)**

5. Elaborate the Components of Time Series.

6. Compute Quartile Deviation and Coefficient of Quartile Deviation from the following data:

X	10-20	20-30	30-40	40-50	50-60	60-70	70-80
f	12	19	5	10	9	6	6

7. Find the trend of the following time series by the Method of Moving Average (assume a four yearly cycle).

Year	Value	Year	Value
1992	53	1999	88
1993	79	2000	80
1994	76	2001	104
1995	66	2002	98
1996	69	2003	96
1997	94	2004	102
1998	105	2005	106

8. Below are given the figures of production in (thousand quintals) of a sugar factory

Year	1999	2000	2001	2002	2003	2004	2005
Production	80	90	92	83	94	99	92

(a) Fit a straight line trend and (b) Estimate the production in 2010.

SECTION C – K4 (CO3)

Answer any TWO of the following **(2 x 10 = 20)**

9. (a) Distinguish between Regression and Correlation.

(b) Explain the Uses of Index Numbers.

10. The scores of two batsman A and B in ten innings during a certain season are as under:

A	32	28	47	63	71	39	10	60	96	14
B	19	31	48	53	67	90	10	62	40	80

Find which batsman is more consistent in scoring.

11. Calculate the quarterly seasonal indices by using the Simple Averages method.

Year	I Quarter	II Quarter	III Quarter	IV Quarter
1991	112	110	120	115
1992	80	105	105	90
1993	95	100	140	80
1994	110	90	130	110
1995	85	110	110	90

1996	92	120	100	85	

12. Obtain an initial basic feasible solution to the following Transportation problem by

(a) North-West Corner Method and

(b) Least Cost Method.

	D	E	F	G	Available
A	11	13	17	14	250
B	16	18	14	10	300
C	21	24	13	10	400
Required	200	225	275	250	950

SECTION D – K5 (CO4)

Answer any ONE of the following **(1 x 20 = 20)**

13. Find the Mean, Median and Mode and verify the empirical relation.

Class	10-15	15-20	20-25	25-30	30-35	35-40	40-45
Frequency	8	14	18	25	15	14	6

14. Calculate Two Regression Equations taking assumed means 2 and 18 for X and Y respectively.

X	1	2	3	4	5
Y	10	20	15	25	30

Predict (a) Y if X = 9 and (b) X if Y = 65.

SECTION E – K6 (CO5)

Answer any ONE of the following **(1 x 20 = 20)**

15. Ten competitors in a beauty contest were ranked by three judges X,Y and Z were as follows:

Rank X	4	2	8	6	1	5	3	9	10	7
Rank Y	2	5	9	3	6	7	1	10	8	4
Rank Z	4	3	6	9	2	8	7	5	1	10

Which pair of judges has the nearest approach to common tastes in beauty?

16. Construct index numbers of price from the following data by applying

(a) Laspeyres' method (b) Paasche's method (c) Bowley's method (d) Fisher's Ideal method and (e) Marshall-Edgeworth method.

Commodities	2021		2022	
	Price	Quantity	Price	Quantity
A	2	8	4	6
B	5	10	6	5
C	4	14	5	10
D	2	19	2	13

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