ST.JOSEPH'S COLLEGE OF ARTS & SCIENCE, (AUTONOMOUS) CUDDALORE-1.

SUBJECT   : BUISNESS STATISTICS AND OPERATIONS RESEARCH
SUBJECT CODE : 17ABB02
DEPARTMENT : STATISTICS
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PART A

Answer ALL the questions (10*1=10)

1. Define primary data?

2. Define secondary data?

3. Define geometric mean?

4. Define harmonic mean?

5. Write the formula for Bowley's co-efficient of skewness?

6. State the different types of kurtosis?

7. Define correlation and its types?

8. Write the two Regression Equations?

9. Define Operation Research?

10. Define Transportation problem?

PART B

Answer any five questions (5*5=25)

11. a) Briefly Explain the Classification of tabulation?

 (b) Explain two method of collecting primary data?

12. a) Calculate mean and median from the following data.

Marks	10-20	20-30	30-40	40-50	50-60	60-70	70-80	80-90
No. of. students	4	12	40	41	27	13	9	4

(b) Calculate the Geometric mean and Harmonic mean.

Marks	0-10	10-20	20-30	30-40	40-50
No. of students	8	12	18	8	6

13. a) Find the Quartile deviation for the following data.

Marks	0-10	10-20	20-30	30-40	40-50	50-60
Frequency	8	20	25	30	12	5

(b) Calculate Bowley's co-efficient of skewness for the given data.

C.I	10-20	20-30	30-40	40-50	50-60
Frequency	18	20	30	22	10

14. a) Find the Karl Pearson's co-efficient of Correlation from the following data.

C.I	10-20	20-30	30-40	40-50	50-60
Frequency	19	28	30	22	10

(b) Calculate Rank Correlation Co-efficient from the data given below.

X	92	89	86	87	83	71	77	63	53	50
Y	86	83	77	91	68	52	85	82	57	57

15. a) Solve the following L.P.P by the graphical method.

Max $Z = 3_{X1} + 2_{X2}$

- $-2_{X1} + X1 \leq 1$
- $X1 \leq 2$
- $X1 + X2 \leq 3$

And $X1, X2 \geq 0$

(b) Solve the following L.P.P by the graphical method.

Minimize $Z = 3_{X1} + 5_{X2}$

$-3_{X1} + 4_{X2} \leq 12$

$X \leq 4$

$2_{X1} - X2 \geq -2$

$X_2 \geq 2$

$2_{X1} + 3_{X2} \geq 12$ and X1, X2 ≥ 0.

16.a) Explain nature and meaning of operation research and scientific methodology?

(b) Find the initial basic feasible solving for the following transportation by North West Corner method.

	A	B	C	D	E
P	2	11	10	3	7
Q	1	4	7	2	1
R	3	9	4	8	12

17. Compute the values of mean, median and mode from the following data.

Class	0-10	10-20	20-30	30-40	40-50	50-60
Frequency	8	15	22	20	10	5

18. Find out the two regression equation from the data given below.

X	65	66	67	67	68	69	70	72
F	67	68	65	68	72	72	69	71

19. General linear programming problem to solve the simplex method.

Maximize $Z=15_{X1}+6_{X2}+9_{X3}+2_{X4}$

Sub to

$$2_{X1}+x2+5_{X3}+6_{X4}+\leq 20$$

$$3_{X1}+x2+3_{X3}+25_{X4}\leq 24$$

$$7_{X4}+x4\leq 70$$

$$X_1,X_2,X_3,X_4\geq 0$$

20. Find the initial basic feasible solving for the following transportation by least cost method.

	A	B	C	D	E
P	2	11	10	3	1
Q	1	4	7	2	1
R	3	9	4	8	12

21. Find the initial basic feasible solving for the following transportation by Vogel's Approximation method.

	I	II	III	
A	5	1	7	10
B	6	4	6	80
C	3	2	5	15
D	0	0	0	40