

CLASS: B.B.A.

15A/48

St. JOSEPH'S COLLEGE (AUTONOMOUS) TIRUCHIRAPPALLI – 620 002

SEMESTER EXAMINATIONS – APRIL 2015

TIME: 3 Hrs.

MAXIMUM MARKS: 100

SEM	SET	PAPER CODE	TITLE OF THE PAPER
IV	2013	11UBU430207	MATHEMATICS AND STATISTICS FOR MANAGERS

SECTION – A

Answer all the questions:

20 x 1 = 20

Choose the correct answer:

- A matrix, when all elements become zeros are denoted by
 - Null matrix
 - Scalar matrix
 - Symmetric matrix
 - Diagonal matrix
- Derivative is the limiting value of the change in the dependent variable by
 - Change in independent variable
 - Interdependent variable
 - Change in co-variable
 - d)
- The difference between the greatest and smallest value is denoted by
 - Standard deviation
 - Co-efficient of variation
 - Range
 - Quartile deviation
- When the various of two variables change in the opposite direction is called
 - Positive correlation
 - Linear correlation
 - Negative correlation
 - Partial correlation
- Circular test is the extension of
 - The time reversal test
 - Factor reversal test
 - Unit test
 - Index numbers

Fill in the blanks:

- Matrix is an arrangement of elements in _____.

7. At BEP the total revenue is equal to _____.
8. _____ is the value of middle most item.
9. _____ is the relationship between variables.
10. _____ are the special type of averages.

State True or False:

11. Statistics does not deal with qualities.
12. Variance are the mean square deviation of the values from their arithmetic mean.
13. Scalar is a real number in the context of matrix operation.
14. Time series is a collection of observation mode sequentially in time.
15. Number of rows and columns are not equal in determinants.

Match the following:

- | | |
|------------------------------|---|
| 16. Unit matrix | - a) Linear simultaneous equation |
| 17. Gramer's rule | - b) Diagonal elements are one |
| 18. Deciles | - c) Special type of average |
| 19. Karl Pearson correlation | - d) Divide the series into ten equal parts |
| 20. Index numbers | - e) Product moment correlation
co-efficient |

SECTION – B

Answer all the questions:

5 x 4 = 20

21. a. Add the following matrix

$$A = \begin{bmatrix} 4 & 4 & 6 \\ 3 & 5 & 4 \\ 2 & 3 & 3 \end{bmatrix} \quad \text{and} \quad B = \begin{bmatrix} 4 & 4 & 6 \\ 5 & 5 & 4 \\ 7 & 3 & 0 \end{bmatrix}$$

OR

- b. Solve the following equations by Gramer's rule.

$$3x + 2y = 8$$

$$5x - 3y = 7$$

22. a. Find the derivations of i) $(x^2 - 7)^2$ ii) $\frac{3x^4 - x^2 + 8}{x}$

OR

b. If the demand law is $x = \frac{20}{p+1}$, find the elasticity of demand at the point when $p = 3$.

23. a. Define statistics. Discuss its functions.

OR

b. The mean of 20 marks is found to be 40. Later on, it was discovered that a mark 53 was missed as 83. Find the correct mean.

24. a. X: 21 36 42 37 25
Y: 47 40 37 42 43

For the data given above, calculate the rank correlation co-efficient.

OR

b. You are given the following data

	X	Y
Arithmetic Mean	36	85
Standard deviation	11	8

Correlation co-efficient between X and Y 0.66.

a) Find the two regression equations

b) Estimate the value of X when $Y = 75$.

25. a. Calculate the cost of living index number from the following

Item	Base year price	Current year price	Weight
Food	39	47	4
Fuel	08	12	1
Clothing	14	18	3
House rent	12	15	2
miscellaneous	25	30	1

OR

b. Fit a straight line.

X: 2 3 5 8 10

Y: 5 6 10 18 21

SECTION – C

Answer any FOUR questions:

4 x 15 = 60

26. $2x + 3y + 3z = 22$

$x - y + z = 4$

$4x + 2y - z = 9$

Solve the above system of simultaneous equations by Gramer's rule.

27. Calculate the maxima and minima value from the following

$y = 2x^3 - 21x^2 + 36x - 20.$

28. Calculate the arithmetic mean, median, mode from the following

Value (More than): 0 50 100 150 200 250

Frequency : 83 75 60 30 13 4

29. Marks obtained by 8 students in accountancy and statistics are given below compute rank correlation.

X: 15 20 28 12 40 60 20 80

Y: 40 30 50 30 20 10 30 60

30. Compute 1) Laspeyre's 2) Paaches 3) Fishers index numbers.

	Price		Qty.	
Item	Base year	Current year	Base year	Current year
A	6	10	50	50
B	2	2	100	120
C	4	6	60	60
D	10	12	30	25
