

(i) Printed Pages : 4]

Roll No.

(ii) Questions : 9+9+9]

Sub. Code :

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Exam. Code:

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**B.A./B.Sc (General) 4th Semester
Examination
1047
ECONOMICS
Quantativ Methods
(In All Mediums)**

Time : 3 Hours]

[Max. Marks : 90

- Note :-** (1) Attempt five questions in all.
(2) Question No. 1 is compulsory.
(3) Attempt one que stion from each Unit.
(4) Use of simple calculator is allowed.

1. Attempt any nine of the following :

(i) Meaning of Power Set.

(ii) If $A = \begin{bmatrix} 1 & 0 \\ -1 & 7 \end{bmatrix}$ and $I = \begin{bmatrix} 1 & 0 \\ 0 & 1 \end{bmatrix}$.

find K so that $A^2 = 84 + K$.

(iii) Find $\frac{dy}{dx}$ when $y = (\log x)^{\log x}$.

(iv) When a matrix is called symmetric ?

(v) Convert the cumulative frequency distribution into a simple frequency distribution.

Marks	No. of Students
Less than 10	4
Less than 20	20
Less than 30	40
Less than 40	48
Less than 50	50

(vi) Explain the meaning of possibility of further algebraic treatment.

(vii) Give the formula for coefficient of variation.

(viii) What is Karl Pearson's coefficient of correlation ?

(ix) What are cyclical variations ?

(x) Formula for Simple Average of Price Relatives Method.

(xi) Explain Time Reversal Test.

(xii) Explain Positively Skewed Distribution.

9x2=18

Unit-I

2. (a) Find $\frac{dy}{dx}$ when $y = \frac{3x + 1}{\sqrt{3x + 2x}}$.

(b) If demand function is $p = 20 - 2x$ find the price elasticity of demand at $p = 4$ and $p = 6$.

9+9=18

3. (a) Find the maximum and minimum values of the function $y = x^3 - 3x^2 + 5$.

(b) Find $\frac{dy}{dx}$, if $y = \frac{1}{\sqrt{x+1} - \sqrt{x-1}}$.

9+9=18

4. (a) Solve the following equations with matrix inverse method :

$$2x + 3y = 5$$

$$11x - 5y = 6$$

(b) Calculate Karl Persons Coefficient of Skewness.

Wages (Rs.)	10	11	12	13	14	15	16
No. of Workers	4	7	9	15	8	5	2

9+9=18

5. (a) Solve the equations by matrix method :

$$x + y - z = 3$$

$$2x + 3y + z = 10$$

$$3x - y - 7z = 1$$

- (b) The mean weight of 150 students is 60 kg. Mean weight of boys is 70 kg with a standard deviation of 10 kg. For the girls the mean weight is 55 kg and the standard deviation is 15 kg. Find the number of boys and girls and combined standard deviation.

9+9=18

Unit-III

6. (a) Find the coefficient of correlation using ranking method :

X	10	15	16	20	18	16	15
Y	16	18	16	20	20	18	12

- (b) Find the no. of students who secured less than 45 marks :

Marks	No. of Students
30-40	31
40-50	42
50-60	51
60-70	35
70-80	31

9+9=18

7. (a) From the following data :
 $N = 8, \Sigma X = 2, \Sigma X^2 = 99$
 $\Sigma Y = 4, \Sigma Y^2 = 68$ and $\Sigma XY = 36$
 Find out the two regression equations.

(b) Using Lagranges method, estimate the values of Y when X = 4.

X	0	2	3	5	6
Y	5	7	8	10	12

9+9=18

8. Calculate Fishes's Ideal Index :

Commodity	1980		1985	
	Price	Value	Price	Value
A	50	350	60	540
B	20	80	30	150
C	24	240	20	300
D	100	600	150	600

Does it satisfy factor reversal-test.

18

9. Fit a straight line trend from the following data :

Year	2003	2004	2005	2006	2007
Production ('000 units)	49	54	60	72	80

18