(AUTONOMOUS)

BA DEGREE EXAMINATION MAY 2018

(Third Semester)

Branch – **ECONOMICS**

MATHEMATICAL METHODS - I

Time : Three Hours Maximum : 75 Marks

SECTION-A (20 Marks)

Answer **ALL** questions

ALL questions carry **EQUAL** marks (10 x 2 = 20)

1 What is Linear equation?
2 Define Mathematical economics.
3 What is Arithmetic Progression?
4 What do you mean by null set?
5 What is Conic section?
6 State the features of a straight line.
7 Define Matrix.
8 What is meant by rank of a matrix?
9 Define adjoint matrix.
10 What do you mean by cofactor of a matrix?

SECTION - B (25 Marks)

Answer **ALL** Questions

ALL Questions Carry **EQUAL** Marks (5 x 5 = 25)

11 a Solve the equation $4x^2+5x-6=0$ using the standard formula.

OR

b Solve $5x+7y=85$
$3x+9y=75$

12 a Find the sum of the series $\frac{1}{2},\frac{1}{4},\frac{1}{8},\frac{1}{16}$..... upto 10 terms

OR

b If A,B and C are any three sets, prove that $A-(B\cup C)=(A-B)\cap(A-C)$ by using Venn diagram.

13 a Find the equation of straight line passing through two points (2,2) and (4,8)

OR

b Find the distance between two points (1,-2) and (-3,4)

14 a Explain the various typs of Matrices.

OR

b If $A=\begin{bmatrix}5 & 6 & 2\\ 7 & 8 & 2\end{bmatrix}_{2x3}$ and $B=\begin{bmatrix}2 & 0\\ 1 & 5\\ 3 & 1\end{bmatrix}_{3x2}$ find AB.

15 a Compute cofactor for the matrix $A=\begin{bmatrix}5 & 2 & 1\\ 2 & 1 & 4\\ 0 & 5 & 6\end{bmatrix}$

OR

b Find the inverse of the matrix $A=\begin{bmatrix}0 & -1 & 2\\ 1 & -2 & -3\\ 3 & 1 & 1\end{bmatrix}$

Cont...

SECTION - C (30 Marks)

Answer any **THREE** Questions
ALL Questions Carry **EQUAL** Marks (3 x 10 = 30)

16 The demand for a commodity is given by D=20-4P and the supply is given by S=10P-8

(i) Find the equilibrium price and quantity

(ii) What will be the equilibrium price and quantity if a tax of Rs.3 per unit is imposed on the commodity?

17 In a class of 60 students, 41 students play cricket, 31 play football, 32 play hockey, 21 play cricket and football, 15 play football and hockey and 19 play cricket and hockey, if every student plays atleast one game, how many students form the class play all the three games?

18 Find the centre and radius of the circle $5x^2+5y^2+12x+6y-11=0$

19 Find the rank of a Matrix $A=\begin{bmatrix} 2 & 3 & 5 & 1 \\ 1 & 2 & 3 & 2 \\ 1 & 3 & 4 & 5 \end{bmatrix}$

20 Solve the following simultaneous equations by using Cramer's rule

$2x+3y-z=9$
$x+y+z=9$
$3x-y-z=-1$

Z-Z-Z END