PSG COLLEGE OF ARTS & SCIENCE
(AUTONOMOUS)
BA DEGREE EXAMINATION MAY 2017
(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   (10x2 = 20)

1   State the general format of a quadratic equation and also write the formula.
2   Find the value of x if $x^2-16=0$.
3   What is meant by Geometric Progression?
4   What is meant by Null set?
5   State the meaning of conic section.
6   State any two property of indifference curve.
7   What is meant by rank of a matrix?
8   Prove that $(A') = A$ if $A = \begin{pmatrix} 2 & 5 \\ 6 & 8 \end{pmatrix}$
9   State the formula to compute inverse of a matrix A.
10   What do you meant by Adjoint of a Matrix?

SECTION - B (25 Marks)
Answer ALL Questions
ALL Questions Carry EQUAL Marks (5 x 5 = 25)

11 a   A Solve: 51 x-3 ly = 51
                           31 x-51y = 31

OR

    b   Solve: . $x^2-16x+48 = 0$.

12 a   Find the tenth term of the Harmonic Prgression: 1/3, 1/5, 1/7...

OR

    b   Present each of the following in a separate Venn diagram.

         (AUB), (AUC), (AUBUC), (AUBUC)'

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

OR

    b   Find the distance between two points (14-3) and (6,-9)

14 a If A= (l 2 -3) and B = $\begin{pmatrix} 8 \\ -5 \\ -2 \end{pmatrix}$ Find AB

OR

b   Find 2A+3B if A = $\begin{vmatrix} -1 & -3 & 3 & -f \\ 1 & 1 & -1 & -0 \\ 2 & -5 & 2 & -3 \\ -1 & 3 & 0 & 1 \end{vmatrix}$ and B = $\begin{vmatrix} 0 & 2 & 1 & 3 \\ 1 & 1 & -1 & -2 \\ 1 & 2 & 0 & 1 \\ -1 & 1 & 2 & 6 \end{vmatrix}$

15 a   Solve the following simultaneous equations using inverse techniques.

$2x + 3y - 5$ '

$1 lx - 5y = 6$

<div align="center">OR</div>

b   Obtain the cofactor matrix of A $\begin{matrix} 1 & 2 & 3 \\ 1 & 3 & 5 \\ 1 & 5 & 12 \end{matrix}$

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SECTION - C (30 Marks!
Answer any THREE Questions
ALL Questions Carry EQUAL Marks (3 x 10 = 30)
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16   Explain the merits and demerits of Mathematical economics.

17   In an examination, 53% students passed in micro economics, 61 percent in macro economics and 60 percent in statistics. 24 percent passed in micro and macro economics 35 percent in micro economics and statistics and 27 percent in macro economics and statistics. 5% students passed in none of these subjects. How many students passed in the all the 3 subjects? How many students failed in exactly one subject?

18   Find the co-ordinates of the centre and radius of the circle whose equation is $3x^2 + 3y^2 - 6x + 9y - 4 = 0$

19   Explain various types of Matrices.

20   Find the inverse of A $\begin{matrix} 1 & 4 & 3 \\ 4 & 2 & 1 \\ 3 & 2 & 2 \end{matrix}$

<div align="center">Z-Z-Z   END</div>