**SAINTGITS COLLEGE OF APPLIED SCIENCES**

**First internal assessment examination, August 2018**

**Department of BA , Semester 1**

Mathematics for Economics -I

Total : **50 marks** Time: **2 Hours**

**Section A**

*Answer any 5 questions. Each question carries 2 marks.*

1. Define singular matrix. Show that $\left[\begin{matrix}\begin{matrix}2&-1&5\\4&-2&10\\5&2&0\end{matrix}& \\ & \end{matrix}\right]$ is singular.

2. Define symmetric and non symmetric matrices.

3. Find the determinant of $\left[\begin{matrix}\begin{matrix}5&2&1\\0&1&3\\2&1&0\end{matrix}& \\ & \end{matrix}\right]$

4. Find 2A+ 4B , where A=$\left[\begin{matrix}\begin{matrix}2&-5\\6&0\\5&2\end{matrix}& \\ & \end{matrix}\right]$ and B=$\left[\begin{matrix}1&-4\\5&3\\2&6\end{matrix}\right]$

5. Find x and y if $\left[\begin{matrix}-3&5\end{matrix}\right]$ +$\left[\begin{matrix}x&y\end{matrix}\right]$=$\left[\begin{matrix}3&1\end{matrix}\right]$

6. Find the transpose of $\left[\begin{matrix}\begin{matrix}-3&2&6\\4&1&7\\-1&8&0\end{matrix}& \\ & \end{matrix}\right]$

 **(5 X 2 = 10 marks)**

 **Section B**

*Short essay questions*

*Answer any 5 questions. Each question carries 5 marks.*

7. If A=$\left[\begin{matrix}\begin{matrix}1&2&3\\2&3&4\\-1&1&2\end{matrix}& \\ & \end{matrix}\right]$ and B=$\left[\begin{matrix}\begin{matrix}0&2&-1\\1&3&4\\0&-2&-3\end{matrix}& \\ & \end{matrix}\right]$ find the products AB and BA. Show that AB≠BA.

8. If A=$\left[\begin{matrix}\begin{matrix}1&2&3\\2&0&1\\1&-1&2\end{matrix}& \\ & \end{matrix}\right]$ B=$\left[\begin{matrix}\begin{matrix}1&0&5\\2&-1&2\\1&0&1\end{matrix}& \\ & \end{matrix}\right]$ , C=$\left[\begin{matrix}\begin{matrix}1&0&1\\2&-1&1\\1&-1&0\end{matrix}& \\ & \end{matrix}\right]$ find 4(A-B+C)

9. If A= $\left[\begin{matrix}\begin{matrix}1&2&0\\2&4&-1\end{matrix}&\begin{matrix}4\\3\end{matrix}\\ & \end{matrix}\right]$ and B= $\left[\begin{matrix}\begin{matrix}2&1&0\\1&-1&2\end{matrix}&\begin{matrix}3\\3\end{matrix}\\ & \end{matrix}\right]$ , (i) Find X such that A-X=3B

(ii) Find Y such that A+2Y=4B.

10. Solve the equations 2x-3y=3, 4x-y=11 using Cramer’s rule.

11. If A=$\left[\begin{matrix}\begin{matrix}3&-3&0\\6&3&9\\12&3&24\end{matrix}& \\ & \end{matrix}\right]$ B=$\left[\begin{matrix}\begin{matrix}2&3&0\\6&-9&3\\3&3&-3\end{matrix}& \\ & \end{matrix}\right]$ verify that $(AB)^{t}$=$B^{t}A^{t}$

12. Find the adjoint of the matrix A=$\left[\begin{matrix}\begin{matrix}1&4&5\\2&-2&-3\\0&-6&-7\end{matrix}& \\ & \end{matrix}\right]$

**(5 X 5 = 25 marks)**

**Section C**

*Long essay questions*

*Answer any 1 question. It carries 15 marks.*

13. Solve the equations 3x+y+z=8, x+ y +z=6, 2x+y-z=1 using matrix method

14. Solve the equations $x+y-2z=2, 2x+6y-3z=-1, 3x+4y-2z=3 $ using Cramer’s rule.

**(1 X 15 = 15 marks)**

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