Step Academy official

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STUDENT NAME	
PAPER CODE	83491
TIME ALLOWED	60
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CLASS	New 1st Year (FSC/ICS)
SUBJECT	Mathematics
TOTAL MARKS	25
Paper Type	

Q1. Choose the correct answer. 5X1=5

1. A matrix, which has only one row is called .....:

(A) Row matrix **(B)** Column matrix **(C)** Square matrix **(D)** None of these

2. The matrix $\begin{bmatrix} 0 & 0 & 0 \\ 0 & 2 & 0 \\ 0 & 0 & 2 \end{bmatrix}$ is a .....:

(A) Rectangular matrix **(B)** Diagonal matrix **(C)** Scalar matrix **(D)** Hermitian matrix

3. If each element of a matix is zero, then it is called .....:

(A) Null matrix **(B)** Identity matrix **(C)** Scalar matrix **(D)** Diagonal matrix

4. The inverse of a square matrix exists if A is:

(A) Singular **(B)** Non singular **(C)** Symmectric **(D)** Rectangular

5. Point of intersection f(x)=2x+5 and g(x)= -x+5 is a point which satisfies:

(A) f(x) **(B)** g(x) **(C)** Both f(x0 and g(x) **(D)** None

Q2. write the answers of following questions. 5X2=10

1 . If A and B are square matrices of the same order, then explain why in general; $(A+B)(A-B) \neq A^2 - B^2$

2 . Using properties of determinants, show that: $\begin{vmatrix} a+x & a & a \\ a & a+x & a \\ a & a & a+x \end{vmatrix} = x^2(3a+x)$

3 . Using properties of determinants, show that: $\begin{vmatrix} 1 & x & x^2 \\ 1 & y & y^2 \\ 1 & z & z^2 \end{vmatrix} = (x-y)(y-z)(z-x)$

4 . Find the value of x if: $\begin{vmatrix} 1 & 1 & 1 \\ 2 & x & 2 \\ 3 & 6 & x \end{vmatrix} = 0$

5 . Find $|AA^t|$ *and* $|A^tA|$: $A = \begin{bmatrix} -3 & 2 & -1 \\ 2 & 1 & 3 \end{bmatrix}$.

Q3. write the answers of following questions. **2X5=10**

1 . Solve the following system of linear equation by matrix inversion method:

$$\left.\begin{aligned} x+y&=2\\ 2x-z&=1\\ 2y-3z&=-1 \end{aligned}\right\}$$

2 . Use Cramer's rule to solve the system

$$\left.\begin{aligned} 3x_1+x_2-x_3&=-4\\ x_1+x_2-2x_3&=-4\\ -x_1+2x_2-x_3&=1 \end{aligned}\right\}.$$