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16. If number of columns and rows are not equal in a matrix then it is said to be a

(1) diagonal matrix (2) rectangular matrix

(3) square matrix (4) identity matrix

17. Transpose of a column matrix is

(1) unit matrix (2) diagonal matrix

(3) column matrix (4) row matrix

18. Find the matrix X if $2X+\begin{pmatrix}1 & 3\\5 & 7\end{pmatrix}=\begin{pmatrix}5 & 7\\9 & 5\end{pmatrix}$

(1) $\begin{pmatrix}-2 & -2\\2 & -1\end{pmatrix}$ (2) $\begin{pmatrix}2 & 2\\2 & -1\end{pmatrix}$ (3) $\begin{pmatrix}1 & 2\\2 & 2\end{pmatrix}$ (4) $\begin{pmatrix}2 & 1\\2 & 2\end{pmatrix}$

19. Which of the following can be calculated from the given matrices

$$A=\begin{pmatrix}1 & 2\\3 & 4\\5 & 6\end{pmatrix}, B=\begin{pmatrix}1 & 2 & 3\\4 & 5 & 6\\7 & 8 & 9\end{pmatrix}, \text{ (i) } A^2 \text{ (ii) } B^2 \text{ (iii) } AB \text{ (iv) } BA$$

(1) (i) and (ii) only (2) (ii) and (iii) only

(3) (ii) and (iv) only (4) all of these

20. If $A=\begin{pmatrix}1 & 2 & 3\\3 & 2 & 1\end{pmatrix}$, $B=\begin{pmatrix}1 & 0\\2 & -1\\0 & 2\end{pmatrix}$ and $C=\begin{pmatrix}0 & 1\\-2 & 5\end{pmatrix}$. Which of the following statements are correct? (i) $AB+C=\begin{pmatrix}5 & 5\\5 & 5\end{pmatrix}$ (ii) $BC=\begin{pmatrix}0 & 1\\2 & -3\\-4 & 10\end{pmatrix}$

(iii) $BA+C=\begin{pmatrix}2 & 5\\3 & 0\end{pmatrix}$ (iv) $(AB)C=\begin{pmatrix}-8 & 20\\-8 & 13\end{pmatrix}$

(1) (i) and (ii) only (2) (ii) and (iii) only

(3) (iii) and (iv) only (4) all of these