



13. If  $A' = \begin{bmatrix} 8 & 2 \\ 6 & 4 \end{bmatrix}$  and  $B' = \begin{bmatrix} 9 & 5 \\ 7 & 3 \end{bmatrix}$ . Find  $(A + 2B)'$
- a.  $\begin{bmatrix} 26 & 20 \\ 10 & 12 \end{bmatrix}$       b.  $\begin{bmatrix} 26 & 12 \\ 20 & 10 \end{bmatrix}$       c.  $\begin{bmatrix} 26 & 10 \\ 20 & 12 \end{bmatrix}$       d.  $\begin{bmatrix} 26 & 20 \\ 12 & 10 \end{bmatrix}$
14. If  $A = \begin{bmatrix} i & 1 \\ 0 & i \end{bmatrix}$ , then the correct relation is \_\_\_\_\_
- a.  $A + A' = \begin{bmatrix} 1 & 0 \\ -1 & 0 \end{bmatrix}$       b.  $A - A' = \begin{bmatrix} 1 & 0 \\ -1 & 0 \end{bmatrix}$       c.  $A + A' = \begin{bmatrix} 0 & 1 \\ -1 & 0 \end{bmatrix}$       d.  $A - A' = \begin{bmatrix} 0 & 1 \\ -1 & 0 \end{bmatrix}$
15. If  $A$  is a square matrix satisfying the equation  $A^2 - 4A - 5I = 0$  then  $A^{-1}$  is equal to
- a.  $A - 4I$       b.  $1/3 (A - 4I)$       c.  $1/4 (A - 4I)$       d.  $1/5 (A - 4I)$
16. If  $A = \begin{bmatrix} 1 & 2 & 2 \\ 2 & 1 & 2 \\ 2 & 2 & 1 \end{bmatrix}$  then  $A^2 - 4A =$
- a.  $3I$       b.  $4I$       c.  $5I$       d. none of these
17. If  $A = \begin{pmatrix} 2 & -1 \\ -7 & 4 \end{pmatrix}$  and  $B = \begin{pmatrix} 4 & 1 \\ 7 & 2 \end{pmatrix}$  then which statement is true
- a.  $AA^T = I$       b.  $BB^T = I$       c.  $AB \neq BA$       d.  $(AB)^T = I$
18. Inverse of a diagonal non-singular matrix is
- a. diagonal matrix      b. scalar matrix      c. skew symmetric matrix      d. zero matrix
19. If  $A = \begin{bmatrix} a & b \\ b & a \end{bmatrix}$  and  $A^2 = \begin{bmatrix} \alpha & \beta \\ \beta & \alpha \end{bmatrix}$ , then
- a.  $\alpha = 2ab, \beta = a^2 + b^2$       b.  $\alpha = a^2 + b^2, \beta = ab$   
 c.  $\alpha = a^2 + b^2, \beta = 2ab$       d.  $\alpha = a^2 + b^2, \beta = a^2 - b^2$
20. If  $f(\alpha) = \begin{bmatrix} \cos \alpha & \sin \alpha \\ -\sin \alpha & \cos \alpha \end{bmatrix}$  and if  $\alpha, \beta, \gamma$ , are angle of a triangle, then  $f(\alpha), f(\beta), f(\gamma)$  equals
- a.  $I_2$       b.  $-I_2$       c.  $0$       d. none of these

**MATRICES**

- |      |      |      |      |      |
|------|------|------|------|------|
| 1.a  | 2.d  | 3.d  | 4.b  | 5.a  |
| 6.b  | 7.b  | 8.d  | 9.d  | 10.d |
| 11.c | 12.a | 13.b | 14.d | 15.d |
| 16.c | 17.d | 18.a | 19.c | 20.b |