Daily Practice Problems
Engg.Maths
Day - 1

1. If two matrices A and B are of order p x q and r x s respectively, can be subtracted only , if

a) p = q b) p = q , r= s c) p = r , q = s d) p = r

2. A square matrix (a_{ij}) in which a_{ij} = 0 for i ≠ j and a_{ij} = k (constant) for i = j is (k ≠ 1)

a) unit matrix b) scalar matrix c) null matrix d) diagonal matrix

3. If A= $[a_{ij}]$ is a scalar matrix of order n x n, such that a_{ij} = k for all i = j , and a_{ij} = 0 for all i ≠ j then trace of A is .

a) nk b) n + k c) $\frac{n}{k}$ d) 1

4. If D_1 and D_2 are two 3 x 3 diagonal matrices then **(MSQ)**

a) $D_1 D_2$ is a diagonal matrix

b) $D_1 + D_2$ is a diagonal matrix

c) $D_1^2 + D_2^2$ is a diagonal matrix

d) $D_1^T + D_2^T$ is a diagonal matrix

5. If AB = 0 , then

a) A must be null matrix

b) B must be null matrix

c) A and B need not be zero matrices

d) A and B are zero matrices

6. **If A and B are two independent events, then the probability of occurrence of at least one of A and B is given by**

(1) $1-P(A')P(B')$ (2) $P(A\cap B)$

(3) $P(\bar{A}\cap B)$ (4) $P(A\cap \bar{B})$

7. **If A and B are any two events in a sample space S then $P(A \cup B)$ is**

1) $\geq P(A)+P(B)$

2) $P(A)+P(B)$

3) $\leq P(A)+P(B)$

4) $P(A \cap B)$

8. If $A \subset B$ then $P(A \cap B^c) =$

1) 1 2) 0 3) P(A) 4) P(B)

9. If A and B are mutually exclusive events in the sample space (s) ,then

(1) $P(A) \leq P(\overline{B})$ (2) $P(A) \geq P(\overline{B})$

(3) $P(A) < P(\overline{B})$ (4) None of these

10. An unbiased coin is tossed n times. The probability that head will present itself, odd number of times is

1) $\frac{1}{4}$ 2) $\frac{1}{3}$ 3) $\frac{1}{2}$ 3) $\frac{1}{5}$

11. $\lim_{x \to 0} \dfrac{\sqrt[K]{1+x}-1}{x}$ (K **is a positive integer**)

1) K 2) $-K$ 3) $\dfrac{1}{K}$ 4) $-\dfrac{1}{K}$

12. $\lim_{x \to 1} \frac{(2x-3)\left(\sqrt{x}-1\right)}{2x^2+x-3} =$

1) $\frac{1}{10}$ 2) $-\frac{1}{10}$ 3) $\frac{2}{5}$ 4) $-\frac{2}{5}$

13. $\lim_{x \to 0} \frac{\sqrt[3]{1+\sin x} - \sqrt[3]{1-\sin x}}{x} =$

1) 0 2) 1 3) $\frac{2}{3}$ 4) $\frac{3}{2}$

14. If $\lim_{x \to 5} \frac{x^k - 5^k}{x-5} = 500$, then the positive integral value of k is

1) 3 2) 4 3) 5 4) 6

15. $\lim_{x \to 1} \frac{\sqrt{x^2-1}+\sqrt{x-1}}{\sqrt{x^2-1}} =$

1) $1+\frac{1}{\sqrt{2}}$

2) $1-\frac{1}{\sqrt{2}}$

3) $-1+\frac{1}{\sqrt{2}}$

4) $-1-\frac{1}{\sqrt{2}}$