Application of Derivatives - 1.

1] The no of solutions of the equation $\cos^{-1}[1-x] + m\cos^{-1}x = \frac{n\pi}{2}$ $(m>0, n\leq 0)$

a) 0 b) 1 c) 2 d) ∞

2] The number of real values of x satisfying equation $3\sin^{-1}[x] + \pi x - \pi = 0$ is / are

a) 0 b) 1 c) 2 d) 3.

3] The maximum value of $\cos x(\cos x + \sin x)$ is

a) $\sqrt{2}$ b) 2 c) $\sqrt{\frac{2+1}{2}}$ d) $\sqrt{2}+1$.

4] If $\sin A$, $\cos A$, $\tan A$, are in G.P then $\cos^3 A + \cos^2 A$ is

a) 1 b) 2 c) 4 d) $\sqrt{2}$.

5) If $A = \sqrt{\sin 2 - \sin\sqrt{3}}$, $B = \sqrt{\cos 2 - \cos\sqrt{3}}$ then which of the foll. is true.

a) $A > B$ b) $A < B$ c) Either 'A' or 'B' is complex

d) Both A & B are complex

6) If m is slope of tangent to the curve $e^y = 1 + x^2$ then

a) $|m| > 1$ b) $|m| < 1$ c) $m > 0$ d) $m < 0$.

7) If at each point of the curve $y = x^3 - ax^2 + x + 1$ the tangent is inclined at an acute angle with positive direction of x-axis then

a) $a > 0$ b) $a \leq \sqrt{3}$ c) $-\sqrt{3} \leq a \leq \sqrt{3}$ d) $a \geq -\sqrt{3}$

8) The slope of tangent to the curve $y = \sqrt{4 - x^2}$ at the point where the ordinate & abscissa is equal to

a) -1 b) 1 c) 0 d) ∞

9] The distance between Origin and tangent to the Curve $y = e^{2x} + x^2$ at the point $x = 0$. is

a) $\frac{1}{\sqrt{5}}$ b) $\frac{2}{\sqrt{5}}$ c) $\frac{1}{\sqrt{3}}$ d) $\frac{2}{\sqrt{3}}$

10) The Equation of the tangent to the Curve $y = be^{-x/a}$ at the point where it Crosses y axis is .....

a) $\frac{x}{a} - \frac{y}{b} = 1$

b) $ax + by = 1$

c) $ax - by = 1$

d) $\frac{x}{a} + \frac{y}{b} = 1$

11] $x^2 + y^2 = \frac{\pi^2}{16}$ meets $y = \frac{\pi x}{3}$ then angle b/w the two curves is .....

a) $\frac{\pi}{4}$ b) $\frac{\pi}{2}$ c) $\frac{\pi}{3}$ d) 0.

12) The curve $y - e^{xy} + x = 0$ has vertical tangents at the point

a) Origin b) $(1,1)$ c) $(0,1)$ d) $(1,0)$

13) Area of Δ formed by the normal to the curve $x = e^{\sin y}$ at $[1,0]$ with the coordinate axis is.....

a) $\frac{1}{4}$ b) $\frac{1}{2}$ c) $\frac{3}{4}$ d) 1.

Key Answers.

1) a	2) b	3) c	4) a
5) d	6) b	7) c	8) a
9) a	10) d	11) b	12) d
13) b			