CH -16 APPLICATION OF DERIVATIVES

AI24BTECH11001 - Abhijeet Kumar

I. B : JEE Mains / AIEEE

40) The maximum volume (*incu.m*) of the right circular cone having slant height 3m is
($JEEM2019-9Jan(M)$)

a) 6π
b) $3\sqrt{3}\pi$
c) $\frac{4}{3}\pi$
d) $2\sqrt{3}\pi$

41) If q denotes the acute angle between the curves, $y = 10 - x^2$ and $y = 2 + x^2$ at a point of their intersection, then is equal to:
($JEEM2019-9Jan(M)$)

a) $\frac{4}{9}$
b) $\frac{8}{15}$
c) $\frac{7}{17}$
d) $\frac{8}{17}$

42) If $f(x)$ is a non-zero polynomial of degree four, having local extreme end points at $x = -1, 0, 1$; then the set
$S = \{xR : f(x) = f(0)\}$ contains exactly:
($JEEM2019-9April(M)$)

a) four irrational numbers.
b) four rational numbers.
c) two irrational and two rational numbers.
d) two irrational and one rational number.

43) If the tangent to the curve, $y = x^3+ax+b$ at that point $(1, -5)$ is perpendicular to the line, $-x+y+4 = 0$ then which of the following points lie on the curve ?
($JEEM2019-9April(M)$)

a) $(-2, 1)$
b) $(-2, -2)$
c) $(2, -1)$
d) $(2, -2)$

44) Let S be the set of all values of x for which the tangent to the curve, $y = f(x) = x^3 - x^2 - 2x$ at (x, y) is parallel to the line segment joining the points $(1, f(a))$ and $(-1, f(-1))$, then S is equal to:
($JEEM2019-9April(M)$)

a) $\{\frac{1}{3}, 1\}$
b) $\{\frac{-1}{3}, -1\}$
c) $\{\frac{1}{3}, -1\}$
d) $\{\frac{-1}{3}, 1\}$