All Branches   Hinglish

Subject : Engineering Mathematics   DPP-06
Chapter : Calculus
Topic : Maxima And Minima

1. The minimum value of $\left(x^2 + \dfrac{250}{x} \right)$ is

   (a) 75
   (b) 50
   (c) 25
   (d) 0

2. The maximum value of $f(x) = (1 + \cos x)\sin x$ is

   (a) 3
   (b) $3\sqrt{3}$
   (c) 4
   (d) $\dfrac{3\sqrt{3}}{4}$

3. A greatest value of $f(x) = \dfrac{\sin 2x}{\sin\left(x + \dfrac{\pi}{4} \right)}$ on the interval $\left[0, \dfrac{\pi}{2} \right]$ is

   (a) $\dfrac{1}{\sqrt{2}}$
   (b) $\sqrt{2}$
   (c) 1
   (d) $-\sqrt{2}$

4. If $y = a \log x + bx^2 + x$ has its extremum values at $x = -1$ and $x = 2$, then

   (a) $a = -\dfrac{1}{2}, b = 2$
   (b) $a = 2, b = -1$
   (c) $a = 2, b = -\dfrac{1}{2}$
   (d) None of these

5. The co-ordinates of the point on the curve $4x^2 + 5y^2 = 20$ that is farthest from the point $(0, -2)$ are

   (a) $\left(\sqrt{5}, 0 \right)$
   (b) $\left(\sqrt{6}, 0 \right)$
   (c) $(0, 2)$
   (d) None of these

6. For what value of $x\left(0 \le x \le \dfrac{\pi}{2} \right)$, the function $y = \dfrac{x}{(1 + \tan x)}$ has a maxima?

   (a) $\tan x$
   (b) 0
   (c) $\cot x$
   (d) $\cos x$

7. The co-ordinates of the point on the parabola $y = x^2 + 7x + 2$ which is closest to the straight-line $y = 3x - 3$, are

   (a) $(-2, -8)$
   (b) $(2, -8)$
   (c) $(-2, 0)$
   (d) None of these

8. The maximum value of $\left(\dfrac{1}{x} \right)^x$ is

   (a) e
   (b) $e^{-\frac{1}{e}}$
   (c) $\left(\dfrac{1}{e} \right)^e$
   (d) None of these

Answer Key

1.	(a)		5.	(c)
2.	(d)		6.	(d)
3.	(c)		7.	(a)
4.	(c)		8.	(d)