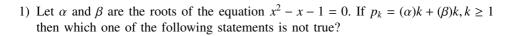
## Jan 7 S2 16-30

## EE24BTECH11051 - Prajwal



a) 
$$(p_1 + p_2 + p_3 + p_4 + p_5) = 26$$

c) 
$$p_5 = p_2 * p_3$$

1

b) 
$$p_5 = 11$$

d) 
$$p_3 = p_5 - p_4$$

2) The area of the region  $\{(x, y) \in R | 4x^2 \le y \le 8x + 12 \}$  is :

a) 
$$\frac{125}{3}$$
 b)  $\frac{128}{3}$ 

$$\frac{128}{3}$$

c) 
$$\frac{124}{3}$$
 d)  $\frac{127}{3}$ 

3) The value of c in Lagrange's mean value theorem for the function  $f(x) = x^3 - 4x^2 + 4x^$ 8x + 11, where  $x \in [0, 1]$  is

a) 
$$\frac{\left(4-\sqrt{7}\right)}{3}$$
b) 
$$\frac{2}{3}$$

c) 
$$(\sqrt{7}-2)$$

b) 
$$\frac{2}{3}$$

c) 
$$\frac{\left(\sqrt{7}-2\right)}{3}$$
  
d)  $\frac{\left(4-\sqrt{5}\right)}{3}$ 

4) Let y = y(x) be a function of x satisfying  $y(\sqrt{1-x^2}) = k - x(\sqrt{1-y^2})$  where k is a constant and y(1/2) = -1/4. Then  $\frac{dy}{dx}$  at  $x = \frac{1}{2}$  is equal to:

a) 
$$\frac{-\sqrt{5}}{2}$$
 b)  $\frac{\sqrt{5}}{2}$ 

c) 
$$-\frac{\sqrt{3}}{2}$$

b) 
$$\frac{\sqrt{5}}{2}$$

c) 
$$\frac{-\sqrt{5}}{4}$$
 d)  $\frac{2}{\sqrt{5}}$ 

5) Let the tangents drawn from the origin to the circle,  $x^2 + y^2 - 8x - 4y + 16 = 0$  touch it at the points A and B. The  $(AB)^2$  is equal to

a) 
$$\frac{32}{54}$$

c) 
$$\frac{5}{5}$$

b) 
$$\frac{6^2}{5}$$

c) 
$$\frac{52}{5}$$
 d)  $\frac{56}{5}$ 

6) If system of linear equations

$$x + y + z = 6 ag{6.1}$$

$$x + 2y + 3z = 10 ag{6.2}$$

$$3x + 2y + \lambda z = \mu \tag{6.3}$$

has more than two solutions, then  $\mu - \lambda^2$  is equal to

- 7) If the function f defined on  $\left(\frac{-1}{3}, \frac{1}{3}\right)$  by  $f(x) = \begin{cases} \left(\frac{1}{x}\right) \log\left(\frac{1+3x}{1-2x}\right) & \text{if } x \neq 0 \\ k & \text{if } x = 0 \end{cases}$  is continuous, then k is equal to
- 8) If the foot of perpendicular drawn from the point (1,0,3) on a line passing through (α,7,1) is (5/3,7/3,17/3) then α is equal to:
  9) If the mean and variance of eight numbers 3,7,9,12,13,20, x and y be 10 and 25
- 9) If the mean and variance of eight numbers 3, 7, 9, 12, 13, 20, x and y be 10 and 25 respectively then xy is equal to
- 10) Let  $X = \{n \in N : 1 \le n \le 50\}$ . If  $A = \{n \in N : n \text{ is a multiple of } 2\}$  and  $B = \{n \in N : n \text{ is a multiple of } 7\}$ , then the number of elements in the smallest subset of X containing both A and B is .