

ASSIGNMENT 12

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I. JEE PYQ 2024 JANUARY 30, SHIFT 2

- 1) Bag A contains 7 white balls and 3 red balls. Bag B contains 3 white balls and 2 red balls. A ball is chosen randomly and found to be red. Then, find the probability that it is taken from bag A :
 - a) $\frac{7}{20}$
 - b) $\frac{1}{2}$
 - c) $\frac{3}{7}$
 - d) $\frac{1}{5}$
- 2) Given $|\vec{b}| = 2$, $|\vec{b} \times \vec{a}| = 2$
Then $|\vec{b} \times \vec{a} - \vec{b}|^2$ is
 - a) 0
 - b) 8
 - c) 1
 - d) 10
- 3) If $f(x) = \ln\left(\frac{2x+3}{4x^2-x-3}\right) + \cos^{-1}\left(\frac{2x+1}{x+2}\right)$. If domain of $f(x)$ is $[\alpha, \beta]$, then $5\alpha - 4\beta$ is
 - a) -2
 - b) 3
 - c) -4
 - d) 1
- 4) If $f(x) = \frac{x}{(1+x^4)^{1/4}}$ and $g(x) = f(f(f(f(x))))$, then $\int_0^{\sqrt{2}-\sqrt{5}} x^2 g(x) dx$ is equal to:
 - a) $\frac{11}{6}$
 - b) $\frac{13}{6}$
 - c) $\frac{2}{5}$
 - d) $\frac{17}{6}$
- 5) If first term of a GP is a and third term is b and in second GP first term is a and fifth term is b and eleventh term of first GP common to which term of second GP:
 - a) 24
 - b) 25
 - c) 21
 - d) 18
- 6) $z^{1985} + z^{100} + 1 = 0$ and $z^3 + 2z^2 + 2z + 1 = 0$. Then number of common roots of equation is:
 - a) 1
 - b) 2
 - c) 3
 - d) 4
- 7) If $x^2 - y^2 + 2hxy + 2gx + 2fy + c = 0$ is the locus of points such that it is equidistant from the lines $x + 2y - 8 = 0$ and $2x + y + 7 = 0$, then the value of $h + g + f + c$ is:
 - a) 1
 - b) 2
 - c) 3
 - d) 4

