JEE MAIN 8 APRIL 2025 SHIFT 2

MATHEMATICS QUESTION PAPER WITH ANSWER KEY

Q.No.	Question	Answers
1	The number of rational terms in the binomial expansion of $(5^{1/2} + 7^{1/8})^{1016}$ is	2. 128
2	$\frac{1}{1^4}+\frac{1}{2^4}+\frac{1}{3^4}+\ldots=\frac{\pi^4}{90}$, $\frac{1}{1^4}+\frac{1}{3^4}+\frac{1}{5^4}+\ldots=\alpha$ $\frac{1}{2^4}+\frac{1}{4^4}+\frac{1}{6^4}+\ldots=\beta$ Then find $\frac{\alpha}{\beta}$.	1. 15
3	There are 12 points in a plane in which 5 are collinear, such that no three of them are in a straight line, then the number of triangles that can be formed from any 3 vertices from 12 points.	2. 210
4	Probability of event A is 0.7 and event B is 0.4, $P(A \cap B^c) = 0.5$ then the value of $P(B \mid A \cap B^c)$ is equal to	3. 1/4
5	$\int_{-1}^{3/2} \lvert \pi^2 x \sin(\pi x) \rvert dx$	2. 3π + 1
6	The product of last 2 digits at $(1919)^{1919}$ is	2. 63
7	If $A = \begin{bmatrix} 2 & 2+p & 2+p+q \\ 4 & 6+2p & 8+3p+2q \\ 6 & 12+3p & 20+6p+3q \end{bmatrix}$, then the value of $\det(\text{adj}(\text{adj}(3A))) = 2^{m \cdot 3}$ then $m+n$ is equal to	2. 24
8	If $f(x) = x - 1$ and $g(x) = e^x$ and $\frac{dy}{dx} = \left(e^{-2\sqrt{x}} g(f(f(x))) - \frac{y}{\sqrt{x}}\right)$, where $y(0) = 0$. Then $y(1)$ equals to	2. e - $1/e^4$
9	Value of $\cot^{-1}(\sqrt{(1+\tan^2 2)} + 1/\tan 2) - \cot^{-1}(\sqrt{(1+\tan^2 2)} - 1/\tan 2)$ is	3. 2 - π/2
10	The sum of square of roots of $[x - 2 \mid^2 - \lvert x - 2 \rvert - 2 = 0$ and $x^2 - 2 \mid x - 3 \mid - 5 = 0$ equals to	42