

JEE (Main) QUESTION PAPER

2024
29th January Shift 2

Time : 3 Hours

Total Marks : 300

General Instructions :

1. There are three subjects in the question paper consisting of Mathematics Q. no. 1 to 30.
2. This Paper is divided into two sections:
 - Section A Consists of 20 multiple choice questions. Each question has 4 choices (1), (2), (3) and (4), out of which ONLY ONE is correct.
 - Section B consist of 10 questions, **Numerical Value Type Questions** - In Section B, attempt any five questions out of 10. The answer to each question is a **NUMERICAL VALUE**. For each question, enter the correct numerical value (in decimal notation, truncated/rounded-off to the second decimal place; e.g. 06.25, 07.00, -00.33, -00.30, 30.27, -27.30) using the mouse and the on-screen virtual numeric keypad in the place designated to enter the answer.
3. There will be only one correct choice in the given four choices in Section A. For each question 4 marks will be awarded for correct choice, 1 mark will be deducted for incorrect choice for Section A questions and zero mark will be awarded for not attempted question.
4. For Section B questions, 4 marks will be awarded for correct answer and zero for unattempted and incorrect answer.

Mathematics

Section A

Q. 1. The function $f(x) = 2x + 3(x)^{\frac{2}{3}}$, $x \in \mathbb{R}$, has

- (1) exactly one point of local minima and no point of local maxima
- (2) exactly one point of local maxima and no point of local minima
- (3) exactly one point of local maxima and exactly one point of local minima
- (4) exactly two points of local maxima and exactly one point of local minima

Q. 2. Let A be the point of intersection of the lines $3x + 2y = 14$, $5x - y = 6$ and B be the point of intersection of the lines $4x + 3y = 8$, $6x + y = 5$. The distance of the point P(5, -2) from the line AB is

- (1) $\frac{13}{2}$
- (2) 8
- (3) $\frac{5}{2}$
- (4) 6

Q. 3. If the mean and variance of five observations are $\frac{24}{5}$ and $\frac{194}{25}$ respectively and the mean

of the first four observations is $\frac{7}{2}$, then the

variance of the first four observations is equal to

- (1) $\frac{4}{5}$
- (2) $\frac{77}{12}$
- (3) $\frac{5}{4}$
- (4) $\frac{105}{4}$

Q. 4. The distance of the point (2, 3) from the line $2x - 3y + 28 = 0$, measured parallel to the line $\sqrt{3}x - y + 1 = 0$, is equal to

- (1) $4\sqrt{2}$
- (2) $6\sqrt{3}$
- (3) $3 + 4\sqrt{2}$
- (4) $4 + 6\sqrt{3}$

Q. 5. If $\log_e a$, $\log_e b$, $\log_e c$ are in an A.P. and $\log_e a - \log_e 2b$, $\log_e 2b - \log_e 3c$, $\log_e 3c - \log_e a$ are also in an A.P., then $a : b : c$ is equal to

- (1) 9 : 6 : 4
- (2) 16 : 4 : 1
- (3) 25 : 10 : 4
- (4) 6 : 3 : 2

Q. 6. Let $A = \begin{bmatrix} 2 & 1 & 2 \\ 6 & 2 & 11 \\ 3 & 3 & 2 \end{bmatrix}$ and $P = \begin{bmatrix} 1 & 2 & 0 \\ 5 & 0 & 2 \\ 7 & 1 & 5 \end{bmatrix}$.

PURCHASE

COMPLETE SOLVED 2024 PAPERS

WITH DETAILED SOLUTIONS