MHT CET 2026 April 13 Shift 1

Question Paper

Conducted by CET Cell, Maharashtra

General Instructions

(i) **Duration:** The total duration of the examination is 3 hours (180 minutes).

(ii) **Total Marks:** The complete paper carries a maximum of 200 marks.

(iii) **Structure:** The paper has 3 Sections:

- **Section A:** 50 Multiple Choice Questions (Physics)
- **Section B:** 50 Multiple Choice Questions (Chemistry)
- **Section C:** 50 Multiple Choice Questions (Mathematics)

(iv) **Compulsory Questions:** All 150 questions are compulsory.

(v) Each question has four options. Only **one** option is correct.

(vi) **Right Answer:** +1 marks.

(vii) **Incorrect Answer:** (No Negative marking).

(viii) **Unanswered/Marked for Review:** 0 marks.

Mathematics

1. The value of $\tan^{-1}(\sqrt{3}) + \sec^{-1}(-2) - \sin^{-1}\left(-\frac{1}{2}\right)$ **is**

(A) $\frac{\pi}{2}$

(B) $\frac{7\pi}{6}$

(C) $\frac{2\pi}{3}$

(D) $\frac{5\pi}{6}$

2. If the statement $(p \wedge q) \rightarrow (r \vee \neg s)$ is False (F), then the truth values of p, q, r and s are respectively

(A) T, T, F, T

(B) T, F, T, F

(C) F, F, T, T

(D) T, T, T, F

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3. In $\triangle ABC$, if $2a^2 = b^2 + c^2$, then the value of $\frac{\cos 3A}{\cos A} + 2$ is

(A) 0

(B) 1

(C) 2

(D) 3

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4. In $\triangle ABC$, $(b-c)^2 \cos^2 \frac{A}{2} + (b+c)^2 \sin^2 \frac{A}{2} =$

(A) a

(B) a^2

(C) $b^2 + c^2$

(D) $2a^2$

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5. If $\frac{dy}{dx} = y + 5$ and $y(0) = 4$, then $y(\log 2)$ is equal to

(A) 13

(B) 15

(C) 18

(D) 9

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6. The coordinates of the foot of the perpendicular from the origin to the plane $2x-3y-6z=4$ are

(A) $\left(\frac{8}{49},-\frac{12}{49},-\frac{24}{49}\right)$
(B) $\left(\frac{2}{7},-\frac{3}{7},-\frac{6}{7}\right)$
(C) $\left(\frac{8}{7},-\frac{12}{7},-\frac{24}{7}\right)$
(D) $\left(\frac{4}{49},-\frac{6}{49},-\frac{12}{49}\right)$

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7. The solution of the differential equation $\frac{dy}{dx}=\frac{x+y}{x-y}$ is

(A) $\tan^{-1}\left(\frac{y}{x}\right)=\log\sqrt{x^2+y^2}+C$
(B) $\tan^{-1}\left(\frac{x}{y}\right)=\log(x+y)+C$
(C) $x^2+y^2=C(x+y)$
(D) $y=x\tan(\log x+C)$

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8. The monomer used to prepare Orlon is

(A) Vinyl chloride
(B) Tetrafluoroethylene
(C) Acrylonitrile
(D) Styrene

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9. Identify the product when a ketone reacts with hydrazine (NH_2-NH_2)

(A) Oxime
(B) Hydrazone

(C) Semicarbazone

(D) Phenylhydrazone

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10. Which of the following reagents is used to prepare alkyl isocyanides from alkyl halides (RX)?

(A) KCN (alc.)

(B) $AgCN$ (alc.)

(C) $NaCN$ (aq.)

(D) HCN

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11. Which of the following aqueous solutions will show maximum vapour pressure at 300 K?

(A) 0.1 M Glucose

(B) 0.1 M $NaCl$

(C) 0.1 M $CaCl_2$

(D) 0.1 M $AlCl_3$
