

MHT CET 2026 May 14 Shift 2

Question Paper (Memory-Based)

Conducted by Maharashtra State CET Cell



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 for Physics and Chemistry Questions. +2 marks for Mathematics Questions.
- (vii) **Incorrect Answer:** (No Negative marking).

1. The value of $\int_0^4 \sqrt{\frac{4-x}{4+x}} dx$ is:

- (A) $4(\pi - 2)$
(B) $2(\pi - 2)$
(C) $4(\pi + 2)$
(D) $2(\pi + 2)$

2. The range of the function $y = \log(\sin x)$ where $\sin x > 0$ is:

- (A) $[0, \infty)$

- (B) $(-\infty, \infty)$
 - (C) $(-\infty, 0]$
 - (D) $[-1, 1]$
-

3. If $x = a \sin t - b \cos t$ and $y = a \cos t + b \sin t$, and it is given that $\frac{d^2y}{dx^2} = 0$, then:

- (A) $y = \text{constant}$
 - (B) $y = x$
 - (C) $y = ax + b$
 - (D) $y = x + c$
-

4. If $\sin x \cos x = \frac{1}{4}$, then the general solution is:

- (A) $x = n\pi + (-1)^n \frac{\pi}{6}$
 - (B) $x = \frac{n\pi}{2} + (-1)^n \frac{\pi}{12}$
 - (C) $x = \frac{n\pi}{2} + \frac{\pi}{12}$
 - (D) $x = n\pi \pm \frac{\pi}{6}$
-

5. If $n \in \mathbb{Z}$, then the expression $\frac{2^n}{(1-i)^{2n}} + \frac{(1+i)^{2n}}{2^n}$ is equal to:

- (A) 0
 - (B) $2i^n$
 - (C) $2 \cos(n\pi/2)$
 - (D) 2^n
-

6. Which of the following reagents is used to distinguish primary, secondary, and tertiary alcohols?

- (A) Lucas Test reagent
- (B) Hunsdiecker reagent

- (C) Grignard Reaction reagent
(D) Benedict's reagent
-

7. Which of the following has the highest boiling point?

- (A) Propane
(B) Ethyl chloride
(C) Ethyl alcohol
(D) Ethane
-

8. Which of the following compounds is used for the preparation of methyl phenyl ether (anisole)?

- (A) Sodium phenoxide and methyl iodide
(B) Phenol and chloroform
(C) Benzene and methanol
(D) Sodium acetate and methyl chloride
-

9. The molar conductivity of 0.1 M acetic acid is $5 \text{ S cm}^2 \text{ mol}^{-1}$ and its limiting molar conductivity is $390 \text{ S cm}^2 \text{ mol}^{-1}$. Calculate the concentration of H^+ ions.

- (A) $1.28 \times 10^{-3} \text{ M}$
(B) $2.56 \times 10^{-3} \text{ M}$
(C) $3.84 \times 10^{-3} \text{ M}$
(D) $5 \times 10^{-3} \text{ M}$
-

10. Find the oxidation state of phosphorus in orthophosphoric acid.

- (A) +1
(B) +3
-

- (C) +5
(D) -3
-

11. A solid sphere of mass M and radius R rolls down an inclined plane of angle θ without slipping. The minimum coefficient of static friction required is:

- (A) $\frac{2}{7} \tan \theta$
(B) $\frac{5}{7} \tan \theta$
(C) $\frac{2}{5} \tan \theta$
(D) $\frac{1}{2} \tan \theta$
-

12. A uniform circular disc of mass M and radius R is rotating with an angular velocity ω about an axis passing through its center and perpendicular to its plane. If a piece of mass m is gently placed on its edge, the new angular velocity will be:

- (A) $M\omega/(M + 2m)$
(B) $M\omega/(M + m)$
(C) $2M\omega/(M + 2m)$
(D) $M\omega/(2M + m)$
-

13. The radius of gyration of a hollow sphere of mass M and radius R about a tangent is:

- (A) $\sqrt{5/3}R$
(B) $\sqrt{7/5}R$
(C) $\sqrt{2/3}R$
(D) $\sqrt{3/5}R$
-

14. Two capillary tubes of radii r_1 and r_2 are dipped vertically in a liquid. If the liquid rises to heights h_1 and h_2 respectively, then the ratio h_1/h_2 is:

- (A) r_1/r_2
 - (B) r_2/r_1
 - (C) r_1^2/r_2^2
 - (D) r_2^2/r_1^2
-

15. The root mean square velocity of an ideal gas at constant pressure varies with density as:

- (A) d^2
 - (B) d
 - (C) \sqrt{d}
 - (D) $1/\sqrt{d}$
-