

MHT CET 2026 May 12 Shift 1

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).

Physics

1. Eight identical spherical liquid drops, each falling with a terminal velocity v , coalesce to form a single large drop. The terminal velocity of the new large drop is:

- (A) $2v$
- (B) $4v$
- (C) $8v$

(D) $16v$

2. A uniform solid sphere of mass M and radius R is placed on a smooth horizontal surface. It is struck by a horizontal cue at a height h above the center. For the sphere to roll without slipping immediately after the impact, the value of h must be:

- (A) $\frac{R}{2}$
 - (B) $\frac{2R}{5}$
 - (C) $\frac{2R}{3}$
 - (D) $\frac{3R}{5}$
-

3. A disc of mass M and radius R has a concentric hole of radius $\frac{R}{2}$. Its moment of inertia about an axis passing through its center and perpendicular to its plane is:

- (A) $\frac{15}{32}MR^2$
 - (B) $\frac{13}{32}MR^2$
 - (C) $\frac{5}{16}MR^2$
 - (D) $\frac{3}{8}MR^2$
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4. The work done in increasing the radius of a soap bubble from R to $2R$ is W . The work done in further increasing its radius from $2R$ to $3R$ will be:

- (A) $\frac{5}{3}W$
 - (B) $\frac{4}{3}W$
 - (C) $\frac{7}{3}W$
 - (D) W
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5. Water flows through a horizontal pipe. At one point, the velocity is 2 m/s and the pressure

is 2 m of water column. What is the pressure at another point where the velocity is 3 m/s?

(Density of water = 10^3 kg/m^3)

- (A) 1.75 m of water
 - (B) 1.2 m of water
 - (C) 1 m of water
 - (D) 1.5 m of water
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Chemistry

1. Identify the type of intermolecular force present between benzene and ammonia.

- (A) Hydrogen bonding
 - (B) Dipole-induced dipole interaction
 - (C) Dipole-dipole interaction
 - (D) Ion-dipole interaction
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2. What is the SI unit for rate of diffusion?

- (A) $\text{cm}^3 \text{ minute}^{-1}$
 - (B) $\text{dm}^3 \text{ hour}^{-1}$
 - (C) $\text{dm}^3 \text{ s}^{-1}$
 - (D) mL hour^{-1}
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3.

Which of the following pair of liquids has dipole-induced dipole interaction?

- (A) Water and ammonia
 - (B) Water and chloroform
 - (C) Water and benzene
 - (D) Water and ethyl alcohol
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4. A certain mass of a gas occupies a volume of 2.5 dm^3 at NTP. Calculate the change in volume of gas at the same temperature, if pressure of gas is changed to 1.25 atm .

- (A) 3.0 dm^3
 - (B) 0.5 dm^3
 - (C) 4.5 dm^3
 - (D) 1.5 dm^3
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5. A gas occupies a volume of 4.2 dm^3 at 101 kPa pressure. What volume will the gas occupy if the pressure is increased to 235 kPa keeping the temperature constant?

- (A) 1.8 dm^3
 - (B) 3.6 dm^3
 - (C) 0.9 dm^3
 - (D) 2.1 dm^3
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Mathematics

1. Let

$$f(x) = \int \frac{x\sqrt{x}}{(1+x)^2} dx \quad (x \geq 0)$$

Then $f(3) - f(1)$ is equal to:

- (A) $\frac{-1}{12} + \frac{1}{2} + \frac{\sqrt{3}}{4}$
(B) $\frac{1}{12} + \frac{1}{2} - \frac{\sqrt{3}}{4}$
(C) $\frac{-1}{6} + \frac{1}{2} + \frac{\sqrt{3}}{4}$
(D) $\frac{1}{6} + \frac{1}{2} - \frac{\sqrt{3}}{4}$
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2. Gas is being pumped into a spherical balloon at the rate of $30 \text{ ft}^3/\text{min}$. Find the rate at which the radius increases when the radius becomes 15 ft .

- (A) $\frac{1}{30} \text{ ft/min}$
(B) $\frac{1}{15} \text{ ft/min}$
(C) $\frac{1}{30\pi} \text{ ft/min}$
(D) $\frac{1}{20\pi} \text{ ft/min}$
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3. Let the function

$$f(x) = \frac{x - |x|}{x}$$

Then

- (A) the function is continuous everywhere
(B) the function is not continuous
(C) the function is continuous when $x < 0$
(D) the function is continuous for all x except zero
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4.

If the direction ratios of two lines are given by

$$l + m + n = 0$$

$$mn - 2ln + lm = 0$$

then the angle between the lines is

- (A) $\frac{\pi}{4}$
 - (B) $\frac{\pi}{3}$
 - (C) $\frac{\pi}{2}$
 - (D) 0
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5. The equation of normal to the curve

$$y = \log_e x$$

at the point $P(1, 0)$ is

- (A) $2x + y = 2$
 - (B) $x - 2y = 1$
 - (C) $x - y = 1$
 - (D) $x + y = 1$
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