

MHT CET 2026 Mathematics Memory Based Question paper PDF

Mathematics

1. Find the area of the region bounded by the curve $y^2 = 4x$ and the line $x = 3$.
 - (a) $8\sqrt{3}$
 - (b) $6\sqrt{3}$
 - (c) $4\sqrt{3}$
 - (d) $12\sqrt{3}$
2. If the vectors $2\hat{i} - \hat{j} + \hat{k}$, $\hat{i} + 2\hat{j} - 3\hat{k}$ and $3\hat{i} + a\hat{j} + 5\hat{k}$ are coplanar, find the value of a .
 - (a) -2
 - (b) -4
 - (c) 2
 - (d) 4
3. Find the general solution of the differential equation $\frac{dy}{dx} + y \cot x = \csc x$.
 - (a) $y \sin x = x + c$
 - (b) $y \cos x = x + c$
 - (c) $y \sin x = c - x$
 - (d) $y \cos x = c + x$
4. The probability of a shooter hitting a target is $\frac{3}{4}$. Find the probability of hitting the target exactly 4 times in 5 shots.
 - (a) $\frac{405}{1024}$
 - (b) $\frac{243}{1024}$
 - (c) $\frac{405}{512}$
 - (d) $\frac{81}{256}$
5. Find the value of k if the function $f(x) = \frac{k \sin x}{x}$ for $x \neq 0$ and $f(0) = 3$ is continuous at $x = 0$.
 - (a) 1
 - (b) 2
 - (c) 3
 - (d) 4

Physics

6. A stone is dropped from a height of 20 m; calculate its velocity just before it hits the ground ($g = 10 \text{ m/s}^2$).
- (a) 10 m/s
(b) 15 m/s
(c) 20 m/s
(d) 25 m/s
7. Calculate the de Broglie wavelength of an electron accelerated through a potential difference of 100V.
- (a) 0.1227 Å
(b) 1.227 Å
(c) 12.27 Å
(d) 2.27 Å
8. What is the ratio of the surface area of two soap bubbles if their radii are in the ratio 2 : 3?
- (a) 2 : 3
(b) 4 : 9
(c) 3 : 2
(d) 9 : 4
9. If the current in a coil changes from 5A to 2A in 0.1 s and an average emf of 30V is induced, find the self-inductance.
- (a) 0.5 H
(b) 1 H
(c) 2 H
(d) 3 H
10. Find the energy stored in a capacitor of $10 \mu\text{F}$ charged to a potential of 50 V.
- (a) 0.0125 J
(b) 0.025 J
(c) 0.125 J
(d) 0.25 J

Chemistry

11. Calculate the number of atoms per unit cell in a Face-Centered Cubic (FCC) crystal structure.
- (a) 2
(b) 4
(c) 6
(d) 8
12. Identify the major product formed when Ethyl Bromide reacts with alcoholic KOH.
- (a) Ethanol
(b) Ethene (Ethylene)

- (c) Diethyl ether
 - (d) Acetaldehyde
13. What is the hybridization of the central atom in SF_6 molecule?
- (a) sp^3
 - (b) sp^2
 - (c) sp^3d
 - (d) sp^3d^2
14. Find the osmotic pressure of a 0.1 M glucose solution at 27°C ($R = 0.0821 \text{ L atm mol}^{-1}\text{K}^{-1}$).
- (a) 1.23 atm
 - (b) 2.46 atm
 - (c) 3.46 atm
 - (d) 4.10 atm
15. Name the catalyst used in the manufacture of ammonia by Haber's process.
- (a) Nickel
 - (b) Platinum
 - (c) Finely divided Iron (Fe) with Molybdenum (Mo) as a promoter
 - (d) Vanadium pentoxide