

MHT CET 2025 Memory Based Question Paper PDF (April 26, 2025) (Shift 2)

Chemistry

1. What is the number of oxygen atoms in the strongest oxoacids of chlorine?
 - (a) 1
 - (b) 2
 - (c) 3
 - (d) 4
2. Find the edge length if the radius given was 186 pm of a BCC (body-centered cubic) lattice.
 - (a) 322 pm
 - (b) 430 pm
 - (c) 215 pm
 - (d) 372 pm
3. Coordination number of BCC lattice is:
 - (a) 6
 - (b) 4
 - (c) 8
 - (d) 12
4. Find the total number of electrons present in 3.2 g of methane (CH_4).

Mathematics

1. Evaluate the integral:
$$\int \frac{\sqrt{\tan x}}{\sin x \cdot \cos x} dx$$
2. If $\tan(\pi \cos \theta) = \cot(\pi \sin \theta)$, then find the value of $\sin\left(\frac{\pi}{4} + \theta\right)$:
 - (a) $\frac{1}{2}$
 - (b) $\frac{1}{\sqrt{2}}$
 - (c) $\frac{1}{4}$
 - (d) $\frac{1}{2\sqrt{2}}$
3. If $\int \frac{(x^4+1)}{x(x^2+1)^2} dx = A \log|x| + \frac{B}{1+x^2} + C$, then find the value of $A - B$:
 - (a) 0
 - (b) 1
 - (c) 2
 - (d) -1
4. The circumcenter of the triangle formed by the lines $xy + zx + zy + 9 = 0$ and $x + y + z = 0$ is:
 - (a) $(-2, -2)$
 - (b) $(0, 0)$
 - (c) $(-1, -1)$
 - (d) $(-1, -2)$

Physics

1. A body is projected vertically upward with a velocity of 20 m/s. What is the maximum height reached? (Take $g = 10 \text{ m/s}^2$)
 - (a) 10 m
 - (b) 20 m
 - (c) 30 m
 - (d) 40 m
2. A capacitor of capacitance $10\mu\text{F}$ is connected to a 100 V battery. What is the energy stored in the capacitor?
 - (a) 0.05 J
 - (b) 0.1 J
 - (c) 0.5 J
 - (d) 1 J
3. A particle moves in a circular path with constant speed. What is the direction of its acceleration?
 - (a) Tangent to the path
 - (b) Radially outward
 - (c) Radially inward
 - (d) Zero