

**MHT CET May 12 Shift 1 Question Paper 2023
(Important Questions)**

Q. Find dissociation constant.

Q. What remains constant in an adiabatic process?

Q. Find the change in pressure if the volume is reduced by 32%. Assume $\gamma = 5/3$.

Q. Why is the Heisenberg reagent used?

Q. A question on Stephen's reaction was asked.

Q. Arrange the compounds in the increasing order of their ionic strength.

Q. Calculate BCC radius.

Q. Calculate spin magnetic moment.

Q. If $(x + iy)^{1/3} = a + ib$, then find $x/a + y/b$.

Q. Find the area bounded by the region $y = x^2$ and $y = |x|$.

Q. $\int [(e^x(x+1))/(\cos^2(xe^{-x}))] dx = ?$ If $y(x) = 2^x + 2^y = 2$. then find the domain of x .

Q. If $a = i + j$ and $b = 2i - k$, then find the point of the intersection of the lines $r \times a = b \times a$ and $r \times b = a \times b$.

Q. $f(y) = [(1 - \sin^{-1}x)/(1 + \sin^{-1}x)]$ then find $f'(y) = x = 0$ and $y = 1$.

Q. If $y = \log_{\sin x} \tan x$ then find dy/dx at $x = \pi/4$.

Q. In a lot of 20 bulbs, there are 6 defective bulbs. If two bulbs are drawn at random without replacement, what is the probability that it will be a defective bulb?

Q. Find the number of common tangents for two given circles.

Q. $\sec^2(\tan^{-1} 2) + \operatorname{cosec}^2(\cot^{-1} 3) = ?$

Q. $f(x) = xe^{x(1-x)}$ and x belongs to \mathbb{R} , then find if $f(x)$ is increasing or decreasing wrt to the given options.

Q. $\int \log \cot(\cot x) dx / \sin 2x = ?$

Q. $f(x) = \int \sqrt{x/(1+x^2)}$ then find $f(3) - f(1) = ?$

Q. Find the solution of differential equation $dy/dx = (1 + y^2)/(1+x^2)$.

Q. If $\int dx/(x(1-x^3)^{1/2}) = k \log [(1-x^3-1)^{1/2}/(1-x^3+1)^{1/2}]$, then find k .

Q. The angle between two lines represented by $x^2 + mx + y^2 \tan^2 \theta$ is 2θ . the value of m .