# MHT CET 2024 Question Paper May 4 Shift 1 PCM

Maths Questions

**Ques 1. Maximize z = x + y subject to x + y <= 10 3y - 2x <= 15 x <= 6 x, y >= 0 Find the maximum value.**

**Ans.** 10

**Ques 2. The equation (cosp-1)x² + (cosp)x + sinp = 0, where x is a variable with real roots. then the interval of p may be any one of the following.**
    **A. (0,2π)**
    **B. (-π, 0)**
    **C. (-π/2, π/2)**
    **D. (0, π)**

**Ans.** D

**Ques 3. If AX = B, where A = $\begin{bmatrix} 1 & -1 & 1 \\ 2 & 1 & -3 \\ 1 & 1 & 1 \end{bmatrix}$, X = $\begin{bmatrix} x \\ y \\ z \end{bmatrix}$, B = $\begin{bmatrix} 4 \\ 0 \\ 2 \end{bmatrix}$ then 2x+y-z**
    **A. 2**
    **B. 1**
    **C. 4**
    **D. -2**

**Ans.** A

**Ques 4.** The equation of the plane passing through the point (1, 1, 1) and perpendicular to the planes 2x + y - 2z = 5 and 3x - 6y - 2z =7 is?
    A.  14x + 2y - 15z = 1
    B.  - 14x + 2y + 15z = 3
    C.  14x - 2y + 15z = 27
    D.  14x + 2y + 15z = 31

**Ans.** D

**Ques 5.** Using the rules in logic, write the negation of the following: (pq)^(qV~r)

**Ans.** ~q ∧ (~p ∨ r)

**Ques 6.** A student scores the following marks in five tests: 45, 54, 41, 57, 43. His score is not known for the sixth test. If the mean score is 48 in the six tests, then the standard deviation of the marks in six tests is:
    A.  100/3
    B.  10/3
    C.  10 / (sqrt(3))
    D.  100 / (sqrt(3))

**Ans.** C

**Ques 7.** A committee of 11 members is to be formed out of 8 males and 5 females. If m is the number of ways the committee is formed with at least 6 males and n is the number of ways with atleast 3 females, then
    A.  n = m - 8
    B.  m = n = 78
    C.  m = n = 68
    D. m + n = 68

**Ans.** B

**Ques 8.**
$$\int \frac{\csc x}{\cos^2\left(1+\log\tan\dfrac{x}{2}\right)}\,dx \quad \text{is equal to}$$

A. $\sin^2\left[1+\log\tan\dfrac{x}{2}\right]+C$

B. $\tan\left[1+\log\tan\dfrac{x}{2}\right]+C$

C. $-\tan\left[1+\log\tan\dfrac{x}{2}\right]+C$

D. $\sec^2\left[1+\log\tan\dfrac{x}{2}\right]+C$

**Ans.** B

**Ques 9.** The value of $\sqrt{3}\csc 20 - \sec 20$ is

**Ans.** 4

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## Chemistry Questions

**Ques 1.** Which having highest first ionization energy

**Ques 2.** Half life of 1st Order reaction is 1 hr. then what is the fraction after 3hr

**Ques 3.** Question related to Stephan Reaction

**Ques 4.** Question related to Max Oxidation No.

**Ques 5.** Question related to BCC structure find Radius

**Ques 6.** Question related to Depression in freezing Point

**Ques 7.** Question related to BP in decreasing order

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Physics Questions

**Ques 1.** Question related to $V_{RMS}$

**Ques 2.** Question related to Ideal Gas Equation

**Ques 3.** Question related to $C_P/C_V \rightarrow$ Monatomic Diatomic

**Ques 4.** Question related to Finding Amplitude

**Ques 5.** Question related to Finding overtone

**Ques 6.** Question related to Logic Gate