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# MHT CET 2024 May 15 Shift 1 & 2 Question Paper PCM

Mathematics

**Ques 1. The statement (p^ (~q)) V ((~p) ^q) v ((~p) ^ (~q)) is equivalent to V**

**A. (~p) v (~q)**
**B. pV (~q)**
**C. PVq**
**D. (~p) v q**

**Ans.** A

**Ques 2. If B = [[3, a, - 1], [1, 3, 1], [- 1, 1, 3]] is the adjoint of a 3 * 3 matrix A and |A| = 4 then a is equal to**

**Ans.** 1

**Ques 3. If A =** $\begin{bmatrix} 0 & 1 & 2 \\ 1 & 2 & 3 \\ 3 & 1 & 1 \end{bmatrix}$**, then $A^{-1}$ =**

**Ans.** $\begin{bmatrix} \frac{1}{2} & \frac{-1}{2} & \frac{1}{2} \\ -4 & 3 & -1 \\ \frac{5}{2} & \frac{-3}{2} & \frac{1}{2} \end{bmatrix}$

**Ques 4. The value of $\sin(\cot^{-1}(x))$ is**
**A $1/(\sqrt{(1 + x^2)})$**
**B $\sqrt{(1 + x^2)}$**
**C $1/(x\sqrt{(1 + x^2)})$**
**D $x\sqrt{(1 + x^2)}$**

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**Ans.** A

**Ques 5. If $y = 5\cos x - 3\sin x$ then $(d^2y)/(dx^2) + y$ equals**
**A 8sin xcos x**
**B 3sin xcos x**
**C 1**
**D 0**

**Ans. 0**

**Ques 6. A wire of length 20 units is divided into wo parts such that the product of one part and cube of the other part is maximum, then product of these parts is**
**A 5**
**B 75**
**C 15**
**D 70**

**Ans.** B

**Ques 7. The integral of $\sec^{2/3}x \operatorname{cosec}^{4/3}x dx$ from π/6 to π/3 is equal to**

**A. 3 ^ (5/6) - 3 ^ (2/3)**
**B. 3 ^ (7/6) - 3 ^ (5/6)**
**C. 3 ^ (5/3) - 3 ^ (1/3)**
**D. 3 ^ (4/3) - 3 ^ (1/3)**

**Solu.** B

**Ques 8. The distribution function F(X) of discrete random variable X is given by**

| X | 1 | 2 | 3 | 4 | 5 | 6 |
|---|---|---|---|---|---|---|
| F(X = x) | 0.2 | 0.37 | 0.48 | 0.62 | 0.85 | 1 |

**Then P[X = 4] + P[x = 5] =**
**A 0.14**
**B 0.85**
**C 0.37**
**D 0.23**

**Ans.** C

**Ques 9. If the lines (x-k)/2 = (y+1)/3 = (z-1)/4 and (x-3)/1= (y-9/2)/2 =z/1 intersect, then the value of k is**
**A 1/2**
**B -1**
**C 1**
**D 3/2**

**Ans.** C

Chemistry

**Ques 1. Which of the following alkane is tertiary?**

**Ques 2. From the options given below, which one of the following is a primary amine?**

**Ques 3. In 2-chloro-3,4-dimethylhexane, how many chiral C atoms are present?**

**Ques 4. Find pH if pkb, [base] and [salt] were given.**
**Ans.** pOH = $pk_b$ - log [base]/[salt]

**Ques 5. Find total volume of unit cell, radius was provided.**

**Ques 6. IUPAC name for 2,5-dimethylpentanol was asked. Structure was provided.**

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