MHT CET 2026 Mathematics Memory Based Question paper PDF

Chemistry

1. Which of the following is not used as a parameter for the classification of polymers?
   (a) Source of polymer
   (b) Structure of polymer chain
   (c) Mode of polymerization
   (d) Boiling point of monomer
2. Which of the following is not used as a parameter for the classification of polymers?
   (a) Source of polymer
   (b) Structure of polymer chain
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   (d) Boiling point of monomer
3. What is the number of unit particles present in a Body-Centered Cubic (BCC) unit cell?
   (a) 1
   (b) 2
   (c) 4
   (d) 6
4. Identify the product formed when phenol reacts with bromine water.
   (a) Bromobenzene
   (b) *o*-Bromophenol
   (c) 2,4,6-Tribromophenol
   (d) Chlorobenzene
5. What is the SI unit of molar conductivity?
   (a) S cm^{-1}
   (b) S cm^2 mol^{-1}
   (c) S mol^{-1}
   (d) S cm

Mathematics

6. Consider two matrices $A = \begin{bmatrix} 3 & -4 \\ 1 & -1 \end{bmatrix}$ and $B = \begin{bmatrix} 6 & -13 \\ 5 & -10 \end{bmatrix}$. If the following matrix equation holds true:

$$\left((A^{-1})^2 + B\right) \begin{bmatrix} x \\ y \end{bmatrix} = \begin{bmatrix} 0 \\ 0 \end{bmatrix}$$

Find the values of x and y.

(a) $(3, 5)$
(b) $(10, 7)$
(c) $(4, 6)$
(d) $(5, 3)$

7. Evaluate the following indefinite integral:

$$\int \sin(\log x)\, dx$$

(a) $\frac{x}{2}[\sin(\log x) - \cos(\log x)] + C$
(b) $\frac{x}{2}[\cos(\log x) - \sin(\log x)] + C$
(c) $x[\sin(\log x) + \cos(\log x)] + C$
(d) $\frac{x}{2}[\sin(\log x) + \cos(\log x)] + C$

8. If A is a 3×3 matrix such that $|A| = 4$ and $B = \text{adj}A$, find the value of $|B|$.

(a) 4
(b) 8
(c) 16
(d) 64

9. Find the value of k if the function $f(x) = \frac{k \sin x}{x}$ is continuous at $x = 0$ and $f(0) = 3$.

(a) 1
(b) 2
(c) 3
(d) 6

10. The converse of the statement $((\sim p) \wedge q) \rightarrow r$ is:

(a) $r \rightarrow ((\sim p) \wedge q)$
(b) $((\sim p) \wedge q) \rightarrow (\sim r)$
(c) $r \rightarrow (\sim p)$
(d) $q \rightarrow r$

11. Find the value of $\tan(105°)$ using compound angle identities.

(a) $2 + \sqrt{3}$
(b) $-(2 + \sqrt{3})$
(c) $1 + \sqrt{3}$
(d) $\sqrt{3} - 2$

Physics

12. What is the power factor of an AC circuit containing only a pure resistor?

    (a) 0
    (b) 0.5
    (c) 1
    (d) -1

13. A ball is thrown upwards with a velocity of 20 m/s. Find the maximum height reached ($g = 10$ m/s^2).

    (a) 10 m
    (b) 20 m
    (c) 30 m
    (d) 40 m

14. A particle in SHM has a speed of 6 cm/s at the mean position and an amplitude of 4 cm. Find its position when its velocity is 2 cm/s.

    (a) $\frac{8\sqrt{2}}{3}$ cm
    (b) $\frac{4\sqrt{2}}{3}$ cm
    (c) $\frac{8}{3}$ cm
    (d) $2\sqrt{2}$ cm

Biology

15. Which enzyme converts trypsinogen into active trypsin in the digestive system?

    (a) Pepsin
    (b) Amylase
    (c) Enterokinase
    (d) Lipase