

MHT CET 2024 Question Paper

May 2 Shift 2 PCM

$$\begin{bmatrix} 3 & \alpha & -1 \\ 1 & 3 & 1 \\ -1 & 1 & 3 \end{bmatrix}$$

Ques 1. If $B =$ is the adjoint of a 3×3 matrix A and $|A| = 4$ then α is equal to

- (A) 1
- (B) 0
- (C) -1
- (D) -2

Ans. (A) 1

Ques 2. IUPAC name of given ether is

Ans. Methoxy ethane

$$\begin{bmatrix} 0 & 1 & 2 \\ 1 & 2 & 3 \\ 3 & 1 & 1 \end{bmatrix}$$

Ques 3. If $A =$, then $A^{-1} =$

A. $\left(\frac{1}{2}\right) \begin{bmatrix} 0 & 1 & 2 \\ 3 & 2 & 1 \\ 4 & 2 & 3 \end{bmatrix}$

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

C.
$$\begin{bmatrix} \frac{1}{2} & -1 & \frac{5}{2} \\ 1 & -6 & 3 \\ 1 & 2 & -1 \end{bmatrix}$$

D.
$$\begin{pmatrix} 1 \\ 2 \end{pmatrix} \begin{bmatrix} 1 & -1 & -1 \\ -8 & 6 & -2 \\ 5 & -3 & 1 \end{bmatrix}$$

Ans. (A) On the right side

Ques 4. Which of the following is Clemmensen reduction.

Ques 5. Which element shows lower oxidation state in 3d series

- (A) Sc
- (B) Ti
- (C) Zn
- (D) None of the above

Ans. (C) Zn

Ques 6. Calculate the the pH of

$$\underline{pH} = pK_a + \log \left(\frac{[salt]}{[acid]} \right)$$

Ans.

Ques 7. What is the conc. of H⁺ ion if pH is 2.7

Ans. $1.99 \times 10^{-3} M$

Ques 8. The relationship between solubility of gas in a liquid at constant temperature and external pressure is ?

Ans. $S \propto P$

Ques 9. How many unit particles in a BCC Unit cell ?

- A. 2**
- B. 1**
- C. 4**
- D. 3**

Ans. A

Ques 10. The most suitable reagent for the conversion of $R-CH_2-OH \rightarrow R-CHO$ is?

Ans. PCC

Ques 11. Edge length of bcc unit cell is

Ans. $4r/\sqrt{3}$, Where, a = edge length

Ques 12. Preliminary Test of Nanoparticles is

- (A) X-ray diffraction**
- (B) Scanning of neutron**
- (C) Scanning of electron**
- (D) None of these**

Ans. (D) None of these

Ques 13. IUPAC name of following Haloarene is

Ans. "halo-" +parent hydrocarbon name.

Ques 14. The converse of $((\sim p) \wedge q) \Rightarrow r$ is

- A. $((\sim P) \vee q) \Rightarrow r$
- B. $(\sim r) \Rightarrow p \wedge q$
- C. $(p \vee (\sim q)) \Rightarrow (\sim r)$
- D. $(\sim r) \Rightarrow ((\sim P) \wedge q)$

Ans. C

Ques 15. The negative of $(p \wedge (\sim q)) \vee (\sim p)$ is equivalent to :

- A. $p \wedge q$
- B. $P \wedge (\sim q)$
- C. $p \wedge (q \wedge (\sim p))$
- D. $p \vee (q \vee (\sim p))$

Ans. A

Ques 16. The variance of the following probability distribution is,

x	0	1	2
$P(X)$	$\frac{9}{16}$	$\frac{3}{8}$	$\frac{1}{16}$

- A. $\frac{1}{8}$
- B. $\frac{5}{8}$
- C. $\frac{1}{4}$
- D. $\frac{3}{8}$

Ans. D