VITEEE 2025 Memory Based Question Paper PDF (April 25, 2025) (Shift 1)

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1. The work done by a conservative force in a closed path is:

(A) Positive

(B) Negative

(C) Zero

(D) Infinite

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2. A particle moves with uniform acceleration along a straight line. The average velocity over an interval is equal to the instantaneous velocity at:

(A) The beginning of the interval

(B) The end of the interval

(C) The midpoint of the interval

(D) Any point in the interval

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3. The unit of electric field intensity is:

(A) N/C

(B) J/C

(C) V/m

(D) Both A and C

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4. In a p-n junction diode, the reverse saturation current doubles for every rise in temperature of:

(A) $5^{\circ}C$

(B) $10^{\circ}C$

(C) $15^{\circ}C$

(D) $20^{\circ}C$

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5. The number of moles of oxygen required for complete combustion of 2 moles of methane is:

(A) 2

(B) 4

(C) 6

(D) 8

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6. Which gas is known as laughing gas?

(A) NO

(B) N_2O

(C) NO_2

(D) N_2O_5

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7. The shape of PCl_5 molecule is:

(A) Trigonal planar

(B) Trigonal bipyramidal

(C) Tetrahedral

(D) Octahedral

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8. According to Le Chatelier's principle, increasing pressure favours the reaction that:

(A) Produces more moles of gas

(B) Produces fewer moles of gas

(C) Has no change in moles

(D) Is exothermic

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9. The solution of the equation $\sin x + \cos x = 0$ in $[0, 2\pi]$ is:

(A) $\pi/4,\ 5\pi/4$

(B) $3\pi/4,\ 7\pi/4$

(C) $\pi/2,\ 3\pi/2$

(D) $\pi/4,\ 7\pi/4$

10. The value of $\lim_{x\to 0} \frac{\sin 3x}{x}$ is:

(A) 1

(B) 3

(C) 0

(D) ∞

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11. If the matrix $\begin{bmatrix} 1 & 2 \\ 3 & 4 \end{bmatrix}$ has determinant k, then the determinant of its adjoint is:

(A) k

(B) k^2

(C) $1/k$

(D) $-k$

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12. The probability of getting exactly 2 heads in 4 tosses of a fair coin is:

(A) $3/8$

(B) $1/4$

(C) $3/16$

(D) $1/2$

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13. A man is 4 times as old as his son. After 5 years, he will be 3 times as old as his son. The present age of the son is:

(A) 5 years

(B) 10 years

(C) 15 years

(D) 20 years

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14. Complete the series: 7, 10, 16, 25, 37, ?

(A) 46

(B) 50

(C) 52

(D) 55