Assam CEE 2026

Question Paper (Memory-Based)

Conducted by ASTU

General Instructions

(i) The test is of 3 hours duration.

(ii) The Question Paper Consists 120 MCQs from three sections: Physics,Chemistry and Mathematics,40 Questions from Each section.

(iii) As Per Marking Scheme +4 Marks was given for every correct answer and -1 Marks were deducted for each incorrect answer.

1. A point charge q is placed at a distance $a/2$ directly above the center of a square of side a. The electric flux through the square is:

(A) $\frac{q}{\varepsilon_0}$

(B) $\frac{q}{6\varepsilon_0}$

(C) $\frac{q}{4\varepsilon_0}$

(D) $\frac{q}{2\varepsilon_0}$

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2. The work function of a metal is 4.0 eV. If the metal is irradiated with radiation of wavelength 200 nm, the maximum kinetic energy of the photoelectrons would be about:
(Use $hc = 1240$ eV $\cdot$ nm)

(A) 6.2 eV

(B) 4.0 eV

(C) 2.2 eV

(D) 8.2 eV

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3. Two wires of the same material have lengths in the ratio $1:2$ and radii in the ratio $1:2$.

The ratio of their specific resistances will be:

(A) 1 : 2

(B) 2 : 1

(C) 1 : 1

(D) 1 : 4

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4. In Young's double-slit experiment, if the separation between the slits is halved and the distance between the slits and the screen is doubled, the fringe width will be:

(A) Halved

(B) Unchanged

(C) Doubled

(D) Quadrupled

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5. A particle moves in a circle of radius R with a constant speed v. The magnitude of the change in velocity after the particle has traveled half of the circular path is:

(A) 0

(B) v

(C) $2v$

(D) $\sqrt{2}v$

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6. According to VSEPR theory, which of the following species has a see-saw shape?

(A) SF_4

(B) XeF_4

(C) CCl_4

(D) BF_4^-

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7. The standard electrode potentials for Zn^{2+}/Zn, Ni^{2+}/Ni, and Fe^{2+}/Fe are -0.76 V, -0.23 V, and -0.44 V respectively. Which of the following reactions is spontaneous?

(A) $Ni^{2+} + Fe \rightarrow Ni + Fe^{2+}$

(B) $Ni + Zn^{2+} \rightarrow Ni^{2+} + Zn$

(C) $Fe + Zn^{2+} \rightarrow Fe^{2+} + Zn$

(D) $Zn^{2+} + Fe^{2+} \rightarrow Zn + Fe$

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8. When phenol is treated with chloroform and aqueous sodium hydroxide, the major product formed is:

(A) Salicylic acid

(B) Salicylaldehyde

(C) Benzoic acid

(D) Benzyl chloride

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9. For the reversible reaction $N_2(g) + 3H_2(g) \rightleftharpoons 2NH_3(g) + Heat$, the forward reaction is favored by:

(A) High temperature and high pressure

(B) Low temperature and high pressure

(C) High temperature and low pressure

(D) Low temperature and low pressure

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10. Which of the following noble gases is the most reactive and forms the maximum number of compounds?

(A) Helium

(B) Neon

(C) Argon

(D) Xenon

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11. The value of the definite integral $\int_0^{\pi/2} \frac{\sin x}{\sin x + \cos x} dx$ is:

(A) $\pi/2$

(B) $\pi/4$

(C) 0

(D) 1

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12. The angle between the lines whose direction cosines satisfy the equations $l + m + n = 0$ and $l^2 = m^2 + n^2$ is:

(A) $\pi/3$

(B) $\pi/4$

(C) $\pi/6$

(D) $\pi/2$

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13. If A is a square matrix of order 3 such that $|A| = 4$, then the value of $|\text{adj}(\text{adj } A)|$ is:

(A) 16

(B) 64

(C) 256

(D) 12

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14. The eccentricity of the hyperbola $\frac{x^2}{16} - \frac{y^2}{9} = 1$ is:

(A) 5/4

(B) 4/5

(C) 3/4

(D) 5/3

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15. A box contains 5 red and 4 black balls. Two balls are drawn one by one without replacement. What is the probability that the second ball is red, given that the first ball drawn was black?

(A) 5/8

(B) 4/9

(C) 5/9

(D) 1/2
