

SAMPLE QUESTIONS (30 Nos.)

Total No. of Questions for HITSEEE - 120

Duration: 2Hrs

- In the forward bias characteristic curve, a diode appears as
 - a high resistance
 - a capacitor
 - an OFF switch
 - an ON switch
- In β - decay
 - Atomic number decreases by one
 - Mass number decreases by one
 - Proton number remains the same
 - Neutron number decreases by one
- The explosion of atom bomb is based on the principle of
 - Uncontrolled fission reaction
 - Controlled fission reaction
 - Fusion reaction
 - Thermonuclear reaction
- The chromium ions doped in the ruby rod
 - absorbs red light
 - absorbs green light
 - absorbs blue light
 - emits green light
- The photoelectric effect can be explained on the basis of
 - Corpuscular theory of light.
 - Wave theory of light
 - Electromagnetic theory light
 - Quantum theory of light
- X-ray is
 - phenomenon of conversion of kinetic energy into radiation
 - conversion of momentum
 - conversion of energy into mass
 - principle of conservation of charge
- The dimensional formula of PV, where P is pressure and V is volume is the same as that of
 - Work
 - Power
 - Elastic modulus
 - Pressure
- Which of the following measurements is most accurate?
 - 9×10^{-2} m
 - 90×10^{-3} m
 - 900×10^{-4} m
 - 0.090 m
- A body having uniform acceleration of 10ms^{-2} has a velocity of 100ms^{-1} . In what time, the velocity will be doubled?
 - 8 s
 - 10 s
 - 12 s
 - 14 s
- The horizontal range is four times the maximum height attained by a projectile. The angle of projection is
 - 30°
 - 45°
 - 60°
 - 90°
- Compound used for making moulds for statues is
 - Copper sulphate
 - Calcium carbonate
 - Plaster of Paris
 - Gypsum
- The general electronic configuration of carbon group elements is
 - ns^2np^2
 - ns^2np^1
 - ns^2np^3
 - None of the above
- The structure of NaCl crystal has
 - Body centered cubic lattice
 - Monoclinic structure
 - Octagonal structure
 - Face centered cubic lattice
- PV = Constant refers to
 - Charles law
 - Dalton's law
 - Avogadro's hypothesis
 - Boyle's law
- The crystal lattice of electrovalent compounds is composed of
 - Atoms
 - Molecules
 - Oppositely charged ions
 - Both molecules and ions
- Properties which depend only on number of particles present in solution are called
 - Additive properties
 - Constitutive properties
 - Colligative properties
 - None of the above
- Which of the following is an extensive property?
 - Volume
 - Density
 - Refractive index
 - Molar volume
- In an endothermic equilibrium reaction, increase in temperature
 - Does not alter K_{eq}
 - Increases K_{eq}
 - Decreases K_{eq}
 - Retards the reverse reaction
- Organic compounds are soluble in
 - Polar solvents
 - Water
 - Non-polar solvents
 - HCl
- Unsaturated compounds with two double bonds are called
 - Olefins
 - Alkanes
 - Alkynes
 - Dienes

21. The order of matrix $B = \begin{bmatrix} 1 & 2 & 5 & 7 \end{bmatrix}$ is

- a) 1×4 b) 4×1 c) 2×1 d) 1×1

22. If $A = \begin{bmatrix} 2 & 1 & 4 \\ -3 & 2 & 1 \end{bmatrix}$ and $X+A=0$ then the matrix X is

a) $\begin{bmatrix} 2 & 1 & 4 \\ -3 & 2 & 1 \end{bmatrix}$ b) $\begin{bmatrix} -2 & -1 & -4 \\ 3 & -2 & -1 \end{bmatrix}$

c) $\begin{bmatrix} -2 & -1 & -4 \\ 3 & 2 & 1 \end{bmatrix}$ d) $\begin{bmatrix} 2 & 1 & 4 \\ 3 & -2 & -1 \end{bmatrix}$

23. 150° into radians

- a) $6\pi/5$ b) $5\pi/6$ c) $\pi/30$ d) None

24. If A, B are acute angles, $\sin A = 3/5$, $\cos B = 12/13$ then $\cos(A+B) =$

- a) $33/65$ b) $65/33$ c) $36/65$ d) $65/36$

25. If $\sin\theta = 3/8$ and θ is acute, then $\cos 2\theta =$

- a) $23/32$ b) $5/8$ c) 1 d) none

26. $\sin 4A + \sin 2A =$

- a) $\sin 3A \cos A$ b) $\sin A \cos 3A$
c) $2 \sin 3A \cos A$ d) $2 \cos 3A \cos A$

27. Which of the following are statements?

- (i) May God bless you. (ii) Rose is a flower
(iii) Milk is white. (iv) 1 is a prime number
- a) (i), (ii), (iii) b) (i), (ii), (iv)
c) (i), (iii), (iv) d) (ii), (iii), (iv)

28. If a compound statement is made up of three simple statements, then the number of rows in the truth table is

- a) 8 b) 6 c) 4 d) 2

29. If p is T and q is F, then which of the following have the truth value T?

- (i) $p \vee q$ (ii) $\sim p \vee q$ (iii) $p \vee \sim q$ (iv) $p \wedge \sim q$
- a) (i), (ii), (iii) b) (i), (ii), (iv)
c) (i), (iii), (iv) d) (ii), (iii), (iv)

30. The number of rows in the truth table of $\sim [p \wedge (\sim q)]$ is

- a) 2 b) 4 c) 6 d) 8

Keys

Q. No.	Answers	Q. No.	Answers	Q. No.	Answers
1	d	11	c	21	a
2	d	12	a	22	b
3	a	13	d	23	b
4	b	14	d	24	a
5	d	15	c	25	d
6	a	16	c	26	a
7	a	17	a	27	d
8	c	18	b	28	a
9	b	19	c	29	c
10	b	20	d	30	b

