SAMPLE QUESTIONS (30 Nos.)

Total No. of Questions for HITSEEE - 120 Duration: 2Hrs

1. In the forward bias characteristic curve, a diode appears as
a) a high resistance b) a capacitor
c) an OFF switch d) an ON switch

2. In β – decay
a) Atomic number decreases by one
b) Mass number decreases by one
c) Proton number remains the same
d) Neutron number decreases by one

3. The explosion of atom bomb is based on the principle of
a) Uncontrolled fission reaction
b) Controlled fission reaction
c) Fusion reaction
d) Thermonuclear reaction

4. The chromium ions doped in the ruby rod
a) absorbs red light b) absorbs green light
c) absorbs blue light d) emits green light

5. The photoelectric effect can be explained on the basis of
a) Corpuscular theory of light. b) Wave theory of light
c) Electromagnetic theory light d) Quantum theory of light

6. X-ray is
a) phenomenon of conversion of kinetic energy into radiation
b) conversion of momentum
c) conversion of energy into mass
d) principle of conservation of charge

7. The dimensional formula of PV, where P is pressure and V is volume is the same as that of
a) Work b) Power
c) Elastic modulus d) Pressure

8. Which of the following measurements is most accurate?
a) 9×10^{-2} m b) 90×10^{-3} m
c) 900×10^{-4} m d) 0.090 m

9. A body having uniform acceleration of $10ms^{-2}$ has a velocity of $100ms^{-1}$. In what time, the velocity will be doubled?
a) 8 s b) 10 s c) 12 s d) 14 s

10. The horizontal range is four times the maximum height attained by a projectile. The angle of projection is
a) 30° b) 45° c) 60° d) 90°

11. Compound used for making moulds for statues is
a) Copper sulphate b) Calcium carbonate
c) Plaster of Paris d) Gypsum

12. The general electronic configuration of carbon group elements is
a) ns^2np^2 b) ns^2np^3
c) ns^2np^1 d) None of the above

13. The structure of NaCl crystal has
a) Body centered cubic lattice b) Monoclilnic structure c) Octogonal structure d) Face centered cubic lattice

14. PV = Constant refers to
a) Charles law b) Daltons law
c) Avogadros hypothesis d) Boyles law

15. The crystal lattice of electrovalent compounds is composed of
a) Atoms b) Molecules
c) Oppositely charged ions d) Both molecules and ions

16. Properties which depend only on number of particles present in solution are called
a) Additive properties b) Constitutive properties
c) Colligative properties d) None of the above

17. Which of the following is an extensive property?
a) Volume b) Density
c) Refractive index d) Molar volume

18. In an endothermic equilibrium reaction, increase in temperature
a) Does not alter K_{eq} b) Increases K_{eq}
c) Decreases K_{eq} d) Retards the reverse reaction

19. Organic compounds are soluble in
a) Polar solvents b) Water
c) Non-polar solvents d) HCl

20. Unsaturated compounds with two double bonds are called
a) Olefins b) Alkanes c) Alkynes d) Dienes

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

a) 1x4 b) 4x1 c) 2x1 d) 1x1

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 , cosB= 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) sin3AcosA b) sinAcos3A
c) 2sin3AcosA d) 2cos3AcosA

27. Which of the following are statements?

(i) May God bless you. (ii) Rose is a flowe
(iii) Milk is white. (iv) 1 is a prime nu

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 simp statements, then the number of rows in the truth table

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

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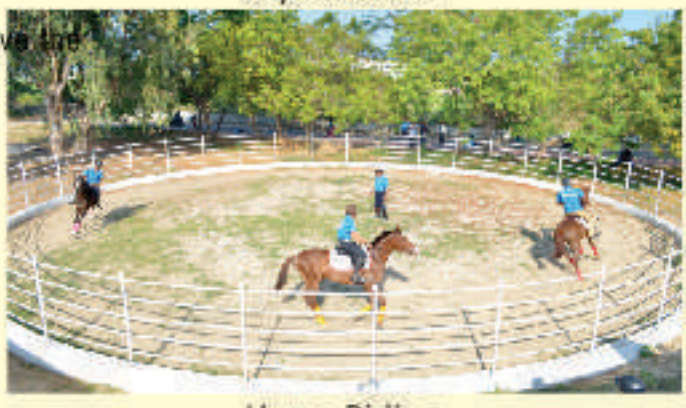

Horse Riding