

CHEMISTRY (Fresh) P-I Time: 20 Minutes Multiple Choice Questions 01 Mark for each	Paper Code <input checked="" type="radio"/> 1 <input type="radio"/> 2 <input type="radio"/> 3	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 20%;">Roll No. of the Student</td> <td style="width: 5%;"> </td> <td style="width: 5%;"> </td> <td style="width: 5%;"> </td> <td style="width: 5%;"> </td> <td style="width: 5%;"> </td> <td style="width: 5%;"> </td> <td style="width: 5%;"> </td> </tr> <tr> <td colspan="8">Serial No. Of the Answer Book _____</td> </tr> </table>	Roll No. of the Student								Serial No. Of the Answer Book _____							
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Note:

- 1) Attempting all MCQs is compulsory. This paper along with the OMR sheet must be returned to the superintendent after due time.
- 2) Fill the circle (A)(B)(C)(D), which one is correct with blue or black ball point, in this sheet as well as in separate OMR Sheet like ●
- 3) If more than one circle in the OMR sheet is filled then no credit will be given to such answer.

SECTION-A

- One mole of a gas occupies a volume of _____ at STP.
1. ● 22.4 dm³ (B) 23.4L (C) 22.4 cm³ (D) 23400 cm³
2. The no of molecule in 44 gm of CO₂ is _____.
- (A) 6.02 × 10²³ (B) 3.011 × 10²³ ● 6.02 × 10²³ (D) 6.02 × 10²²
3. Charge to mass ratio of electronic equal to _____.
- $\frac{E}{B^2 r}$ (B) $\frac{E}{Br}$ (C) $\frac{E}{Br^2}$ (D) $\frac{E}{B^2 r^2}$
4. Which of the following molecule has zero dipole moment _____.
- (A) NH₃ (B) NF₃ ● BF₃ (D) H₂O
5. If there are three electron pair present in the valence shell of central atom than the geometrical shape of molecule will be _____.
- (A) Linear ● Angular (C) Pyramidal (D) Trigonal Planar
6. The Plasma is _____.
- (A) Positively charge (B) Neutral (C) Negatively charge (D) Double positively charge
7. Which one of the following has the greatest London dispersion forces. _____.
- (A) He (B) Ne ● Xn (D) Rn
8. When moles of reactant and product are equal unit of equilibrium constant is (K_c) _____.
- (A) Mol/L. (B) L/Mol (C) Mol²/L² ● No unit
9. The coordination number of each ion in NaCl crystal is _____.
- (A) 1 (B) 4 (C) 6 (D) 8
10. The equilibrium constant of all reaction may be equate to one when they complete up to _____.
- (A) 1% ● 50% (C) 75% (D) 100%
11. Activated complex is a substance which is _____.
- (A) Stable ● Unstable (C) Can be isolated (D) Can exist as product
12. Order is determined _____ parameter.
- (A) Experimentally (B) On paper (C) Solution (D) Theoretical
13. Cl^- is the conjugate base of _____.
- (A) AlCl₃ (B) NaCl ● HCl (D) KClO₃
14. Fog is the example of: _____.
- (A) Solution ● Colloid (C) Suspension (D) None
15. Unit of Kw is _____.
- (A) mole dm⁻³ (B) mole⁻² dm⁻⁶ ● mole² dm⁻⁶ (D) mole² dm⁻³.
16. The oxidation number of Cl in HClO₃ is _____.
- (A) -1 (B) +1 (C) +3 ● +5
17. Which one of the following is NOT state function ?
- (A) Enthalpy ● Heat (C) Temperature (D) Pressure
18. The SI unit of work and heat is _____.
- Nm⁻² × m³ (B) Nm⁻² (C) m³ (D) Nm⁻² / m³

CHEMISTRY (Fresh) P-I

Note: Time allowed for section B and C is 2 hours and 40 minutes.

SECTION "B"

Marks: 40

II. Attempt any TEN Parts out of the following. Each Part carries equal marks.

- i. Calculate the mass of 12.04×10^{23} formula unit of NaCl.
- ii. Write note on the discovery of proton.
- iii. Give the Molecular orbital theory diagram for the formation N_2 molecule.
- iv. Sigma bond is stronger than π (π) bond why?
- v. Differentiate liquid crystal from pure liquid and crystalline solid.
- vi. Write the two importance of equilibrium constant K_c .
- vii. Calculate the density of CH_4 at $0^\circ C$ and 1 atmosphere.
- viii. Discuss deviation of CO_2 , and H_2 from ideal Behavior at different temperature and show graph.
- ix. Name the four factors that increase the rate of reaction.
- x. Why all collisions between reactant molecules do not lead to reaction? Describe briefly.
- xi. Describe Solubility.
- xii. Why Na^+ is in oxidizing agent but Na is reducing agent.
- xiii. The work done has positive and negative values.

SECTION "C"

Marks: 27

Note: Attempt any THREE questions of the following. Each question carries equal Marks.

- III. (a) Explain valence bond theory.
(b) What are Quantum Number? Explain.
- IV. (a) Define and explain the following property of crystalline solids.
(i) Cleavage plane (ii) Anisotropy
(b) Define and explain vapor pressure of liquid
- V. (a) Describe Buffer Solutions.
(b) Write a detail note on the Activation Energy.
- VI. (a) What is electrolytic cell? Explain Daniell cell in detail.
(b) Balance the redox equation by the half reaction method $I^- + OCl \rightarrow I_2 + Cl^- + H_2O$