Sig. of Supdt:.....	KT-XI-1701 **Chemistry (Part – I)** Fresh/Reappear	Roll No..... Fic. No.....

Code=R

Fic. No.....

Time allowed: 3 Hrs **Chemistry (Part – I)** **Marks: 85**

Fresh / Reappear

Note: There are three sections of the paper, A, B & C. Attempt Section – A on the same paper and return it to the Superintendent within the given time. No marks will be awarded for cutting, erasing or over writing. Mobile phone etc. are not allowed in the examination hall.

Time: 20 Mins **Section "A"** **Marks: 18**

Q.1 Write the correct option i.e. A, B, C or D in the empty box provided opposite each part.

i. No work is done at constant. B
A. Pressure B. Volume C. Temperature D. Mass

ii. The lead storage battery is a / an..... B
A. Daniel cell B. Voltic cell C. Dry cell D. Electrolytic cell

iii. Which one of the following is strong electrolytes in .....solution? D
A. NH_4OH B. H_2CO_3 D. CH_3COOH D. KI

iv. The no of moles in 8.5×10^{25} molecule of H_2O are C
A. 6.02×10^{23} B. 3.01×10^{23} C. 1.41×10^{2} D. 32.5×10^{2}

v. The percentage of Mg in $MgSO_4$ is ..... A
A. 20% B. 25% C. 30% D. 35%

vi. Bracket series lies in the region ..... B
A. Near IR B. Mid IR region C. Far IR region D. Visible region

vii. Cathode rays were given the name electron by..... B
A. Hithorf B. Crookes B. G.J Stoney D. J.J Thomson

viii. The bond order for nitrogen molecule is ..... [ ]
A. 0 B. 1 C. 2 D. 3

ix. The splitting of spectral line in the presence of magnetic field is called ..... B
A. Stark effect B. Zeeman effect C. Uncertainity principle D. Hund rules

x. Which of the following molecule has zero dipole moment? C
A. NH_3 B. NF_3 C. BF_3 D. H_2O

xi. The rate of diffusion of H_2 compared with He is ..... B
A. 0.5 times B. 1.4 times C. 2 times D. 4 times

xii. A crystal conduct heat and electricity with different magnitude in different direction. This property of crystal is called ..... B
A. allotropy B. Anisotropy C. Isotropy D. Polymorphism

xiii. Which of the following has lowest polarizibility? D
A. I_2 B. Br_2 C. Cl_2 D. F_2

xiv. The geometry of NaCl is C
A. Simple cubic B. body central cubic C. Face central cubic D. Hexagonal

xv. Which of the following has no effect on the equilibrium position of a reaction? A
A. Catalyst B. Concentration C. Temperature D. Pressure

xvi. In which of the following value of K_c the reaction goes to completion in forward direction? C
A. 1 B. 10^{-30} C. 10^{30} D. 10^{2}

xvii. .....the value of pH greater is the acidity. A
A. Smaller B. Higher C. Neither higher nor smaller D. both B and C

xviii. When reactant are less stable than products the reaction is..... [ ]
A. Endothermic B. Exothermic C. Non spontaneous D. Isothermal

Time: 2:40 Hours KT-XI-1701

Chemistry (Part – I)

Fresh/Reappear

Section "B" Marks: 40

Q.2 Attempt any TEN parts. Each parts carries equal marks.

i. Calculate the mass in gram of 1.5 moles of NaOH.

ii. Differentiate between stark effect and zeeman effect.

iii. Write the essential feature of valence shell electron pair repulsion theory.

iv. Discuss the formation of O_2 molecule on the basis of molecular orbital theory.

v. State Boyle's law. How cn it be experimentally verified?

vi. Discuss deviation of CO_2, N_2 and H_2 from ideal behavior at different temperature and show graph.

vii. Define allotropy. Give example.

viii. Why does a liquid boil at different temperature at sea level and at mountains?

ix. With the help of chemical equilibrium expression how will you predict the direction and extent of a chemical reaction.

x. Describe Raoults's law

xi. Balance the redox equation by oxidation number method.

$$Zn + HNO_3 \rightarrow Zn(NO_3)_2 + NO + H_2O$$

xii. Discuss Faraday's law of electrolysis (Two Laws).

xiii. Explain the reason that enthalpy change is a state of function but heat is not.

Section "C" Marks: 27

Note: Answer any THREE questions. Each question carries equal marks.

Q.3.a. What are x-rays? How they are produced?

b. Calculate the mass in gram of (i) 8 moles of AL_2O_3 (ii) 13 moles of H_2SO_4.

Q.4.a. Define viscosity how can it be measured?

b. Explain hybridization with reference to Sp^3, Sp^2 and Sp mode of hybridization.

Q.5.a. What factor effect rate of reaction?

b. State the law of mass action and derive the equilibrium expression for the general reaction.

Q.6.a. What are the electrochemical cell? Explain in detail.

b. Write short note on colligative properties.