



## Model Paper Chemistry Subjective

Intermediate Part – I (11<sup>th</sup> Class) Examination Session 2015-2017 and onward

Total marks: 68

Time: 2:40 hours

### SECTION ----- I

2. Answer any Eight parts from the followings:-

8 × 2 = 16

- (i) The removal of an electron from a neutral atom is an endothermic process. Explain with reason.
- (ii) Actual yield is always less than theoretical yield. Give two reasons.
- (iii) Calculate the no. of molecules present in 34 g of H<sub>3</sub>PO<sub>4</sub>.
- (iv) Solvent extraction ferns the Distribution Law. Justify.
- (v) Define sublimation. Give one example.
- (vi) Calculate the value of General Gas constant in SI units.
- (vii) Pilots feel uncomfortable breathing at higher attitude. Give reason.
- (viii) Gases deviate from ideal behaviour at low temperature and high pressure. Give reasons.
- (ix) Table salt is an insulator in solid state. Justify.
- (x) Liquid crystals can be used in diagnosis of Cancer. Explain.
- (xi) Evaporation is a cooling process. Give reason.
- (xii) Graphite has slippery touch. Give reason.

3. Answer any Eight parts from the followings:-

8 × 2 = 16

- (i) Positive rays are also called canal rays. Give reason.
- (ii) The radius of first orbit of hydrogen atom is 0.529 Å<sup>0</sup>. Calculate the radius of 3<sup>rd</sup> orbit of hydrogen atom.
- (iii) Explain stark effect.
- (iv) Pressure can effect the production of Cathode Rays.
- (v) Dipole moment of CO<sub>2</sub> is zero. While that of H<sub>2</sub>O is 1.85 D. Explain.
- (vi) Explain the geometry of H<sub>2</sub>Se molecule.
- (vii) Electronegativity increases from left to right in periodic table. Give reason.
- (viii) Sketch the molecular orbital picture of O<sub>2</sub>.
- (ix) Enthalpy is a state function. Justify.
- (x) Born Haber's Cycle is another form of Hess's Law. Justify.
- (xi) Buffers are important in many areas of Chemistry. Justify.
- (xii) Define Le-Chatelier's principle.

4. Answer any Six parts from the followings:-

6 × 2 = 12

- (i) Give the applications of the solubility product.
- (ii) Depression of freezing point is a colligative property. Justify.
- (iii) Na<sub>2</sub>SO<sub>4</sub> · 10H<sub>2</sub>O shows discontinuous solubility curve. Give reason.
- (iv) What is the molality of a solution prepared by dissolving 5 g of Glucose in 250g of water.
- (v) Electromotive force can be calculated from electrochemical series. Explain with reason.
- (vi) Lead accumulators is a chargeable battery. Comment.
- (vii) Calculate the oxidation number of chromium in: (a) K<sub>2</sub>CrO<sub>4</sub> (b) K<sub>2</sub>Cr<sub>2</sub>O<sub>7</sub>
- (viii) Differentiate between average and instantaneous rate of reaction.
- (ix) Explain auto-catalysis.

( P.T.O.)

## SECTION ----- II

**Note:** Attempt any three questions.

(8 x 3 = 24)

- 5.(a) What are London forces. Explain various factors affecting it. 4
- (b) Mg reacts with HCl to give hydrogen gas. What is the minimum volume of HCl solution (27 % by weight) required to produce 16.1 g of H<sub>2</sub>. The density of HCl solution is 1.14 g/cm<sup>3</sup>.  

$$\text{Mg}_{(s)} + 2\text{HCl}_{(aq)} \rightarrow \text{MgCl}_{2(aq)} + \text{H}_{2(g)}$$
 4
- 6.(a) What is hybridization? Explain Sp<sup>2</sup> hybridization with example. 4
- (b) State first law of thermodynamics and prove that  $\Delta E = q_v$
- 7.(a) What is Plasma? How is it produced? Give its two applications. 4
- (b) Describe Milikian's Oil Drop method for the measurement of charge of an electron. 4
8. (a) What is Standard Hydrogen Electrode (SHE)? How is it used for the measurement of electrode potential. 4
- (b) Calculate the pH of a buffer solution in which 0.11 M CH<sub>3</sub>COONa and 0.09 M acetic acid solutions are present. K<sub>a</sub> for CH<sub>3</sub>COOH is  $1.85 \times 10^{-5}$ . 4
9. (a) Explain Roul't's Law when both components are volatile. 4
- (b) Define order of reaction. How does half life method can be used for its determination. 4

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