HSSC-I Examination
Chemistry Guess Question Paper

Chapter 05 & 06
(LIQUIDS & SOLIDS)

SECTION – A

Time allowed: 20 minutes **Marks: 17**

Note: Section-A is compulsory. All parts of this section are to be answered on the question paper itself. It should be completed in the first 20 minutes and handed over to the Centre Superintendent. Deleting/overwriting is not allowed. Do not use lead pencil.

Q.1 Encircle the correct option i.e. A / B / C / D. All parts carry equal marks.

(i) Which one of the following has large value of Enthalpy?
(a) Heat of Vaporization (b) Heat of fusion
(c) Heat of Sublimation (d) Heat of atomization

(ii) Water has maximum density at:
(a) 0^o C (b) 100^o C (c) 25^o C (d) 4^o C

(iii) Which of the following compounds does not show hydrogen bonding:
(a) Chloroform (b) Ethanol (c) Water (d) Acetaldehyde

(iv) 1Pa.s =
(a) 1 kg. m^{-1}. s^{-1} (b) 100 Poise
(c) 1 kg^{-1} m. s^{-1} (d) 0.1 kg. m^{-1}. s^{-1}

(v) Distillation under reduced pressure is called:
(a) Steam distillation (b) Destructive distillation
(c) Fraction Distillation (d) Vacuum distillation

(vi) Which of the following has highest value of surface tension?
(a) H_2O (b) C_5H_{12} (c) C_6H_{12} (d) C_7H_{16}

(vii) Which of the following requires least energy for vaporization?
(a) Cl_2 (b) Br_2 (c) I_2 (d) F_2

(viii) In order of mention the boiling point of water at 110^o C, the external pressure should be:
(a) Between 760 torr & 1200 torr (b) Between 200 torr and 760 torr
(c) 765 torr (d) Any value of Pressure

(ix) When water freezes, it occupies:
(a) 9% more space (b) less space (c) same amount of space (d) None of these

(x) The existence of two compounds in the same crystalline from is known as:
(a) Allotropy (b) Anisotropy (c) Isomorphism (d) Polymorphism

(xi) Coordination of Cl^{-1} ion & Na^{-1} ion in NaCl crystal are:
(a) 5 & 6 (b) 6 & 6 (c) 6 & 4 (d) 3 & 3

(xii) Which one of the following ionic compound possesses greater lattice energy:
(a) NaCl (b) KCl (c) $MgCl_2$ (d) $CaCl_2$

(xiii) CO_2 in a solid state forms:
(a) Ionic crystal (b) Molecular crystal (c) Liquid crystals (d) covalent crystal

(xiv) Co-ordination number of 'Cs' in 'CsCl' is:
(a) 8 (b) 6 (c) 4 (d) 2

(xv) Which one of the following solid has lowest melting point:
(a) NaCl (b) I_2 (c) $C_6 H_{12} O_6$ (d) Fe

(xvi) Sugar shows one of the following crystalline system:
(a) Tetragonal (b) Monoclinic (c) Rhombohedral (d) Triclinic

(xvii) Critical temperature of a gas is always_____ melting point.
(a) equal to (b) Greater than (c) less than (d) Triclinic

Time allowed: 2.40 hours **Total Marks: 68**

Note: Answer any eleven parts from Section 'B' and Attempt any two questions from Section 'C' on the separately provided answer book. Use supplementary answer sheet i.e. Sheet–B if required. Write your answers neatly and legibly.

SECTION – B (Marks 42)

Q.2 Attempt any **Fourteen** parts from the following. All parts carry equal marks.

i. When long bridges are constructed, the roadbed is made in sections with spaces between the sections. Why must be done so?

ii. Briefly explain why the particles in solid ice stick together & those of steam do not (even when they get very close (collision)?

iii. Look at the densities in the table below:

No	Element	Density (g/cm^3)
1	Oxygen	0.00133 at room temperature & Pressure
2	Sulphur	8.92
3	Potassium	7.14
4	Nitrogen	0.00117 at room temperature & Pressure

(a) What is the Physical state of each element in the above table at 25^o C
(b) Give reason for big differences in the densities of elements shown above?
(c) Why is the temperature & pressure important & pressure important when giving the density of oxygen & nitrogen?

iv. How does electron gas theory explain metallic bonding?

v. Differentiate between Polymorphism & Isomorphism.

vi. Briefly explain the three factors that affect the shape of an ionic crystal.

vii. Briefly explain the conductivity of a metallic crystal using "Electron Sea theory."

viii. Why does a compound like $CaCl_2$ (calcium chloride) fluctuate in mass from day to day because of humidity?

ix. Justify the Following:

- **(a)** Steam causes more severe burns than does the boiling water. Give reason.
- **(b)** Vapour pressure of water, ethyl alcohol & diethyl ether are different from each other at 0^{o} C
- **(c)** Water is liquid at room temperature while H_2S is a gas.

x. The vapour pressure of Solids is for less than those of liquids. Give reason.

xi. What are the factors affecting surface tension?

xii. Why distillation under reduced pressure is often used in the purification of chemicals?

xiii. In a Pressure cooker, food can be cooked quickly, as compared to the simple cooker. Give reasons.

xiv. What are the factors affecting Evaporation?

xv. Describe the role of hydrogen bonding in cleansing action of soap and solubility of organic Compounds in water. Give an example.

xvi. Define and explain the term Viscosity of a liquid. How the resistance to the layers causes viscosity?

xvii. How can you interpret the anomalous behaviour of water?

xviii. Justify the following:
(a). Heat of Sublimation is much greater than heat of vaporization.
(b). Evaporation causes cooling effect.
(c). Evaporation takes place at all temperature.

xix. How will you differentiate between Liquid crystals from pure liquids & crystalline solids?

xx. How will you explain the covalent solids?
(i). when the atoms are jointly held together like diamond.
(ii). When the atoms have separate layers like graphite.

SECTION – C (Marks 26)

Attempt any **Two** Questions from the following.

Q3. (a) Explain the structure of NaCl, keeping in view the unit cell.

(b). Use the concept of Hydrogen bonding to explain the following properties of water?

(i). High Surface tension

(ii). High Heat of Vaporization.

Q4. **(a).** What are London Dispersion forces? Also discuss the factors affecting these forces.

(b). How will you Explain the use of oxygen & Sulphur to define allotropes?

Q5. (a) Differentiate between hexagonal close packing and cubic close packing of atoms in the metals.

(b). how will you explain that diamond is non-conductor while graphite is conductor in nature?

(c). Explain the low density & high heat of fusion of ice?

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