

A.P.R.E.I. SOCIETY (R) HYDERABAD

S.S.C. IMPORTANT QUESTIONS

CHEMISTRY

UNIT – 1

(ATOMIC STRUCTURE)

One mark questions

1. What is the nodal region ?
2. Write the plank's equation?
3. Write the differences between an orbit and an orbital ?
4. Explain why electrons enter into 4s orbital but not 3d after filling 3p orbital ?
5. Write the electronic configurations of 'Cr' & 'Cu' ?

Two marks questions

1. Draw the diagram showing the sequence of filling of various atomic orbitals ?
2. Explain pauli's exclusion principle with an example ?

Four marks questions

1. State the postulates of Bohr's model ? What are the defects of Bohr's model.
2. Define the ionization energy and mention the factors that influence it.
3. State and explain with one example the aufbau principle ?
4. State and explain with one example the Hund's rule of maximum multiplicity ?
5. Draw the diagrams of 's', 'p' and 'd' orbitals.

UNIT – 2

(CHEMICAL BOND)

One mark questions

1. Give one example for S-S overlap ?
2. Give some examples for S-P overlap ?
3. Give some examples for P-P overlap ?
4. Give three examples of molecules having a double bond ?
5. Give two examples of molecules having a triple bond ?
6. Name two molecules having pyramidal shape ?

Two marks questions

1. Draw the shape of NH₃ molecule ?
2. Draw the shape of H₂O molecule ?
3. Draw the shape of PCl₅ molecule ?

Four marks questions

1. Explain how sigma and pi bonds are formed ?
2. Explain the formation of coordinative covalent bond ?
3. Explain the formation of a triple bond ?

UNIT – 3

(PERIODIC CLASSIFICATION OF ELEMENT)

One mark questions

1. State mendeleef's periodic law ?
2. State modern periodic law ?
3. Give examples of two Doberiner triads ?
4. Which group of elements have the highest electropositive character ?
5. Which element has high electronegative value ? Mention the value of it.

Four marks questions

1. Write the characteristics of 'long form of periodic table' ?
2. Explain how the following vary in a period and in a group:
 - a) Atomic size
 - b) Ionization potential
 - c) Electro positivity
 - d) Electro negativity
 - e) Oxidation
 - f) Reduction

UNIT – 4

(ALKALINE EARTH METALS)

One mark questions

1. Why do you add KCl and NaCl to $MgCl_2$ during Mg extraction ?
2. Why IIA group elements do not follow any regular trend in M.P and B.P ?
3. Write the minerals and their formulae of IIA group elements ?

Four marks questions

1. Draw the diagram of extraction of magnesium from its ore.
2. Write the reactions of group IIA with
 - (i) Oxygen
 - (ii) Hydrogen
 - (iii) Water and
 - (iv) Chlorine

UNIT – 5

(SOLUTIONS)

One mark questions

1. Define solubility ? Classify the types of solutions based on solubility ?
2. What are the strong electrolytes ? Give examples.
3. What are the weak electrolytes ? Give examples.
4. What are non-electrolytes ? Give examples.
5. How do you increase the extent of ionization of a weak electrolyte ?
6. Name some non-aqueous solvents ?

Problems – two marks

1. 15 ml of hexane is mixed with 45 ml of heptane. Calculate the V% of this solution ?
2. 10grams of Na_2CO_3 is dissolved in 190 grams of water. Calculate the W% of this solution ?
3. Calculate the number of moles of NaOH present in 750 ml of 0.4m solution (M.W of NaOH is 40)

Four marks questions

1. Define Molarity ? 2.12 grams of Na_2CO_3 is present in 250ml of its solution. Calculate the molarity of the solution (M.W of Na_2CO_3 is 106).
2. Define mole fraction ? 2 moles of Na_2CO_3 is dissolved in 3 moles of water, calculate the mole fraction of Na_2CO_3 and water.

UNIT – 6

(ACIDS, BASES AND SALTS)

Two marks questions

1. What is the ionic product of water ? Give its value at 25°C ?
2. What is the heat of neutralization ? Give its value for a reaction between strong acid and strong base.
3. Define P^{H} ? Who introduced it ?
4. Calculate the P^{H} of 0.001 M HCl ?

Four marks questions

1. Define an acid, a base according to arrhenius theory and write the limitations of arrhenius theory ?
2. Calculate the P^{H} of 0.002M HCl ?
3. Define strong acid, strong base, weak acid and weak base. Give one example for each.

UNIT – 7

(Chemistry of Carbon Compounds)

One mark questions

1. Define catenation ?
2. What is meant by isomerism ?
3. Draw the structure of Benzene ?
4. What is meant by allotropy ?

Two marks questions

1. Compare the structures of diamond and graphite ??
2. Write the uses of CO_2 ?
3. How can you prepare acetylene from CaC_2 ?

Four marks questions

1. What are alkanes ? Write the substitution reactions and combustion reactions of alkanes ?
2. Write the functional groups and their formula of carbon compounds ?

UNIT – 8

(Carbohydrates and proteins)

One mark questions

1. Define carbohydrates ?
2. What is meant by fermentation ?
3. What is rectified spirit ?
4. What is bagasse ?
5. Why are the alcohol distilleries located at the places of much water source ?

Two marks questions

1. What are the functions of proteins ?

Four marks questions

1. Draw the diagram showing the parts of sugar industry ?
2. Draw the diagram showing the parts of alcohol manufacture ?
3. Explain the steps involved in production of sugar from sugar-cane ?

UNIT – 9
(OILS AND FATS)

One mark questions

1. What is meant by saponification ?
2. What is a soap ?
3. What is a detergent ?
4. What is hydrogenation of oil ?
5. What are advantages of hydrogenation of oils ?

Two marks questions

1. Differentiate between oil and fat ?
2. Name 4 fatty acids ?

Four marks questions

1. How is soap industrially manufactured ?
2. How do you test the quality of soap ?

UNIT – 10
(CHEMISTRY AND INDUSTRY)

One mark questions

1. What is the use of adding cullet to the raw materials of glass ?
2. What is annealing ?
3. What is drug ?
4. What is meant by polymerization ?
5. Name two hormones ?
6. What are pharmaceuticals ?
7. What are primary nutrients ?

Two marks questions

1. Define chromophore and auxochrome and two examples for each.
2. Sketch the structure of Aspirin and paracetamol ?
3. What is the glass – blowing ? Which glass is used for glass – blowing ?
4. Give the characteristics of an ideal drug ?

Four marks questions

1. What is glass ? Explain the different stages in preparation of glass ?
2. Classify the drugs depending upon their therapeutic action ?
3. What are the characteristics of good quality face powder ?
4. Draw the diagram of fractionation of petroleum and label it.