S.S.L.C. MODEL EXAMINATION—2014 **3035**

CHEMISTRY

Time : 1½ hours www.modelquestionpapers.in *Total Score : 40*

Instructions

- This question paper contains 13 questions.
- Score of each question is given against each question.
- Write the question numbers for main and sub questions correctly.
- Questions with choice are included. For such questions, answer only one question.

SCORE

1. In periodic table, elements are included in different blocks.

   (a) Analyse the properties given below and name the block to which they are associated. 1

   (i) Coloured compounds are formed.

   (ii) Show different Oxidation states.

   (b) Name the sub shells from which electrons are lost when Fe^{3+} is formed by writing the electronic configuration of Fe. 2

   [Atomic number of Fe = 26]

2. Dilute HCl is taken in a test tube. Which among the following can react fast with dilute hydrochloric acid. Write the chemical equation of the reaction. 2

   (Reactivity Series: Cu < Sn < Fe < Mg)

   [Cu, Fe, Sn, Mg]

3. One mole of water (H_2O) consists of 6.022×10^{23} molecules.

   (a) Find the number of molecules present in 3 moles water. 1

   (b) What will be the mass of 5 moles of water? 2

   [given: Atomic mass H=1, O=16]

4. Ionisation energy of a few elements are given below (Symbols not real):

   P = 2732 kJ/mol

   Q = 850 kJ/mol

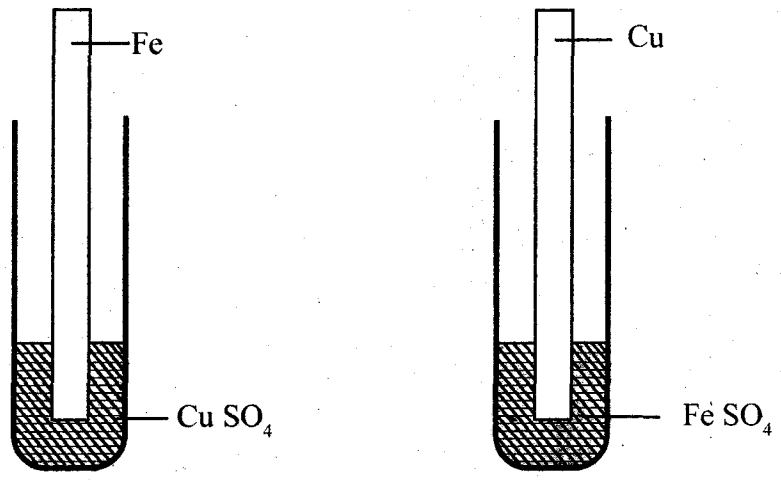
   R = 1370 kJ/mol

   (a) Which of them is an inert gas? 1

   (b) Which of them is the element present at the left end of periodic table? 1

SCORE

5. Observe the metals dipped in solutions taken in two test tubes:



Test tube—1 Test tube—2

[Hint: Reactivity series Cu < Sn < Fe < Zn]

(a) Identify the test tube in which displacement reaction takes place. Why? 2

(b) Write the chemical equation of the oxidation reaction in the above displacement reaction. 2

6. Dilute sulphuric acid (H_2SO_4) is taken in a test tube. A small quantity of sodium carbonate (Na_2CO_3) is added to the test tube.

(a) If the gas liberated in this reaction turns limewater milky, name the gas. 1

(b) Which salt is to be treated with H_2SO_4 to produce hydrochloric acid? Write the chemical equation. 2

(c) Write an example to prove the dehydration property of H_2SO_4. 1

7. A gas becomes liquid when the pressure is increased and temperature is decreased.

(a) Write two examples for the liquefaction process of a gas. 2

(b) What happens to the speed of molecules and attractive forces between them during liquefaction of a gas? 2

8. Some organic compounds are given below:

(i) $CH_3—CH_2—CH_2—OH$

(ii) $CH_3—CH_2—CH_2—CH_3$

(a) Name the functional group present in the compound (i) 1

(b) Which among them show chain isomerism? 1

(c) Write the position isomer of compound (i) 1

SCORE

OR

Some data related to an organic compound are given below:

(i) There is an oxygen atom in the functional group.

(ii) There are 3 carbon atoms.

(iii) No branches.

(iv) Functional isomer is alcohol.

(a) If so, name the functional group of the compound. 1

(b) Draw the structure of the compound. 1

(c) What is the IUPAC name of the compound? 1

9. Two reactions are given below:

(i) $CH_3—CH_3+Cl_2 \xrightarrow{\text{Sunlight}} \underline{\quad(A)\quad} + HCl$

(ii) $n\ CH_2=\underset{\underset{Cl}{|}}{CH} \xrightarrow[\text{Catalyst}]{\text{High T \& P}} \underline{\quad(B)\quad}$

(a) Find out A and B. 2

(b) Name any one of the above reactions. 1

10. Chemical equation of the industrial preparation of ammonia is given:

$N_2+3H_2 \rightleftharpoons 2NH_3 + \text{heat}$

(a) Write the name of the process. 1

(b) What is the effect of pressure in this reaction? 1

(c) Temperature of this reaction is fixed as 500 °C. Give reason. 1

11. Find out suitable relations and match the following: 3

A	B
(a) 88g CO_2	Avogadro number
(b) 6.022×10^{23}	196 g
(c) 2 mol H_2SO_4	64g O_2

12. Some organic compounds are given below:

[$CH_3—OH$, $CH_3—COOH$, $CH_3—CH_3$, $CH_3—O—CH_3$]

(a) Which of them are necessary to prepare ester? 2

(b) Write the chemical equation of the reaction. 1

SCORE

OR

Incomplete chemical equations of the preparation of ethanol are given below:

(i) $C_{12}H_{22}O_{11} + H_2O \xrightarrow{(A)} C_6H_{12}O_6 + C_6H_{12}O_6$
(sugar) (glucose) (fructose)

(ii) $C_6H_{12}O_6 \xrightarrow{(B)} 2\,C_2H_5—OH + 2\,CO_2$
(ethanol)

(a) Identify the enzymes (A) and (B). 1

(b) How will you convert the 'wash' obtained in the equation (ii), into rectified spirit? 1

(c) Can we use the rectified spirit as power alcohol? Give reason. 1

13. Some statements are given below:

(i) Shape can be changed on heating.

(ii) Chemical change can be made by heating.

(a) Which of these statements is suitable for thermoplastic? 1

(b) Write an example each for thermo plastic and thermo setting plastic. 2