B

SECOND TERMINAL EVALUATION 2016-17
CHEMISTRY

Standard : X

Score : 40
Time : 1½ hour

Instructions

1. First 15 minutes is given as cool off time. This time is to be used for reading and understanding the questions.
2. Write down answers for all questions.
3. The score for each question is given along with the question.

1. During the production of metals, $ZnCO_3$ undergoes calcination while Cu_2S undergoes roasting.
   a) What is the difference between calcination and roasting? (1)
   b) Write the chemical change happening to $ZnCO_3$, when it undergoes calcination. (1)
2. The chemical equation for one of the stages in the industrial preparation of sulphuric acid is given below.

$$2SO_{2(g)} + O_{2(g)} \rightleftharpoons 2SO_{3(g)} + \text{heat}$$

   a) Name the catalyst used in the industrial preparation of sulphuric acid? (1)
   b) How the following conditions influence the rate of forward reaction?
   i) Decrease in pressure. (1)
   ii) Removal of sulphur trioxide from the system. (1)
3. Aqueous solution of sodium chloride is electrolyzed using platinum electrodes.
   a) Identify the ions present in sodium chloride solution? (1)
   b) What are the products liberated/deposited at the anode and the cathode? (2)
   c) Write any two applications of electrolysis. (1)
4. A few details are provided for two organic compounds. Find out a, b and c. (3)

$CH_3 - CH_2 - COOH$	$CH_3 - CO - CH_3$
Carboxylic group	(c) .....
IUPAC Name (a)	Propanone
Molecular formula (b)	C_3H_6O

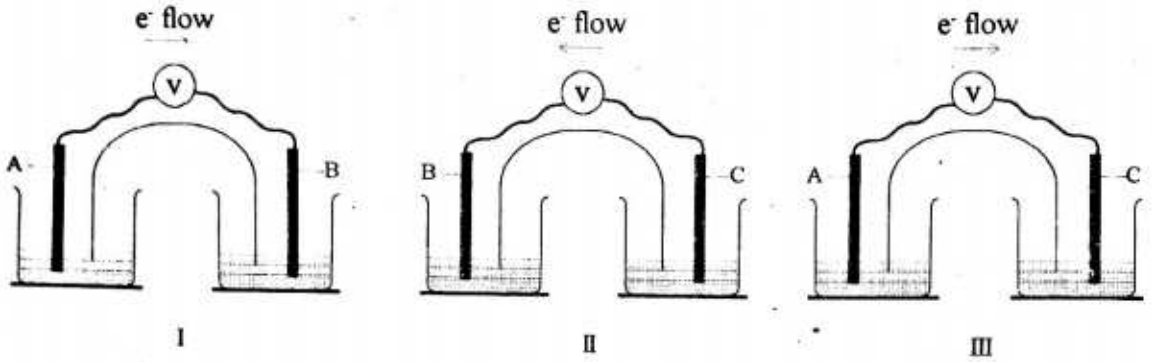
5. a) Complete the following chemical reactions.

i) $CH \equiv CH + HBr \rightarrow \overset{A}{.....}$ (1)

ii) $CH_3 - CH_3 + Cl_2 \xrightarrow{\text{sunlight}} \overset{B}{.....} + HCl$ (1)

b) Identify the type of chemical reaction in each case. (2)

6. Three different galvanic cells are illustrated below.



(Hints: A, B and C are metals, the symbols are not real)

a) Identify the cathode in cell 1? (1)

b) In cell 2, identify the electrode in which oxidation take place? Write the chemical equation for this reaction. (2)

c) Arrange the metals A,B and C in the decreasing order of their reactivity. (1)

OR

Some solutions and metals are given below. (Hint: Mg > Zn > Cu > Ag)

[$AgNO_3$, Cu, Ag, $ZnSO_4$, $MgSO_4$, Zn]

a) Draw a galvanic cell from the materials given above. (2)

b) Identify the anode and cathode in the galvanic cell and write down the balanced chemical equations for the corresponding reactions in electrodes. (2)

7. a) Complete the following table. (1)

Metal	Method of purification
Copper	Electrolytic method
Zinc	.....
Tin	.....

b) Why different methods are used for purifying the metals Zinc and Tin? (1)

8. Some details of an organic compound are given below.
   - There are three Carbon atoms in the main chain.
   - There is a hydroxyl group in the first carbon atom.

   a) Write the structural formula of the compound. (1)

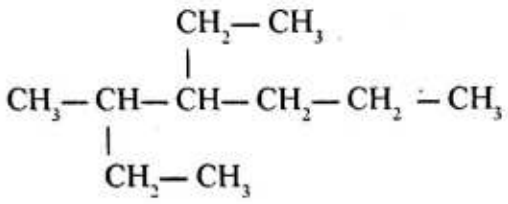
   b) Write the structural formula of any one isomer of this compound. Also identify the type of isomerism. (2)

9. In the metallurgy of aluminum, there are two steps namely concentration of ore and production of metal.

   a) Which method is used for the concentration of ore? (1)

   b) Carbon and carbon monoxide cannot be used as a reducing agent for the seperation of aluminium from its ore. Explain why? (2)

10. The structural formula of an organic compound is given below.



   a) How many carbon atoms are present in the main chain? (1)

   b) Give the IUPAC name. (2)

11. Copper sulphate solution is taken in a test tube and an iron nail is dipped in it.

   a) What are the changes observed in the above process? Explain the reason. (2)

   b) Is it a redox reaction? Explain using chemical equations. (2)

12. Cyclohexane is an alicyclic compound.

   a) Give the structural formula of cyclohexane. (2)

   b) Give the molecular formula of the alkene, which is an isomer of cyclohexane. (1)

13. Complete the following table. (2)

Alloy	Components	Characteristics	Use
(a)	Fe, Ni, Al, Co	(b)	Making permanent magnets
Nichrome	(c)	High resistance	(d) .....