

**GENERAL PRINCIPLES AND PROCESSES OF  
ISOLATION OF ELEMENTS****CHAPTER-6****TEST-A****SOLVED**

Time: 1 hr.

Max. Marks: 30

**SECTION-A****Tick the correct option:**

1. Which of the following is correctly matched? [1]
- (i) Van Arkel method → Nickel                      (ii) Electrolytic refining → Aluminium  
(iii) Distillation → Tin                                      (iv) Liquation → Zinc
2. How many ores out of the following are oxide ores? [1]  
Cassiterite, Calamine, Zinetic, Cuprite, Siderite, Galena
- (a) 2                      (ii) 3                      (iii) 1                      (iv) 4
3. Impure copper ore is called copper matte. Its composition is [1]
- (i)  $\text{Cu}_2\text{S} + \text{FeS}$                       (ii)  $\text{CuS} + \text{FeS}$                       (iii)  $\text{Cu}_2\text{S} + \text{FeO}$                       (iv)  $\text{Cu}_2\text{O} + \text{FeS}$

**Assertion-Reason type Questions:**

- (i) If assertion and reason both are correct and reason is the correct explanation of assertion.  
(ii) If assertion and reason both are correct and reason is not the correct explanation of assertion.  
(iii) If assertion is correct and reason is wrong.  
(iv) If assertion is wrong and reason is correct.
4. Assertion: The copper ore is heated in a reverberatory furnace after mixing with silica.  
Reason: Silica lowers the melting point and converts copper ore into copper silicate. [1]
5. Assertion: Graphite electrodes are used in the electrolytic reduction of molten alumina to aluminium. [1]  
Reason: Graphite is a good conductor of electricity and convert  $\text{O}_2$  released into CO and  $\text{CO}_2$ .

**One word /One Sentence type Questions.**

6. State the role of pine oil in the froth floatation process. [1]
7. What is the principle involved in the liquation? [1]

**SECTION-B**

8. Give reason: [2]
- (i) Impure copper ore is put in a silica-lined converter.
  - (ii) Tungsten is used in the Van Arkel's method.
9. How is leaching used in the extraction of silver and gold by Mac-Arther cyanide process? [2]
10. (i) How will you extract copper from low-grade copper ores? [2]
- (ii) Write the equations involved in the extraction of zinc from zinc blende.
11. Account for the following: [3]
- (i) Metal in the metallurgical operation obtained in the molten or in the vapour form.
  - (ii) Inner lining of the blast furnace is made up of magnesium oxide.
  - (iii) Small amount of  $\text{H}_2\text{SO}_4$  is added to  $\text{CuSO}_4$  solution during the electrolytic refining of copper.
12. (i) Write the reactions which takes place in the upper part of the blast furnace. [3]
- (ii) How is cast iron different from pig iron?
13. Explain the following: [3]
- (i) Zone refining
  - (ii) Hydraulic washing
  - (iii) Role of NaCN in froth floatation process.
14. State the role of [3]
- (i) Cryolite in the metallurgy of aluminium
  - (ii) Carbon monoxide in the refining of Nickel.
  - (iii) Graphite rods in the electrolytic reduction of alumina.
15. (a) The value of  $\Delta_f G^\circ$  for formation of  $\text{Cr}_2\text{O}_3$  is  $-540 \text{ KJ/mol}$  and that of  $\text{Al}_2\text{O}_3$  is  $-827 \text{ KJ/mol}$ .
- (i) Calculate the  $\Delta_r G^\circ$  for the reaction [3+2]  
$$\text{Cr}_2\text{O}_3 + 2\text{Al} \rightarrow \text{Al}_2\text{O}_3 + 2\text{Cr}$$
  - (ii) Why this above reaction does not takes place at  $25^\circ\text{C}$ ?
- (b) Describe giving all equations, the separation of impurities from bauxite ore using Baeyer's process.

