

**SARDAR PATEL UNIVERSITY**  
**F.Y.B.Sc. (SECOND SEMESTER) (CBCS) EXAMINATION**  
**2011**

Tuesday, 26th April

3.00 pm to 5.00 pm

**INDUSTRIAL CHEMISTRY VOCATIONAL**  
**US02CICV01 : (METALLURGY & MATERIAL SCIENCE)**

**Total Marks: 70**

- Q.1 Answer the following questions by choosing Any One of the following [10] options.
1. \_\_\_\_\_ are good conductor of heat and electricity.
    - a. Metals
    - b. Non metals
    - c. Metalloids
    - d. All of the above
  2. Ore dressing includes.
    - a. Communion only
    - b. Concentration only
    - c. Both the above
  3. Alloys have melting point \_\_\_\_\_ than their constituent elements.
    - a. More
    - b. Less
    - c. average
  4. In cyanidation process of extraction of silver the solution employed is of
    - a. sodium chloride
    - b. sodium cyanide
    - c. sodium nitrate
    - d. silver nitrate
  5. Principle ore of aluminium from which Aluminium metal is extracted by electrometallurgy is
    - a. Bauxite
    - b. Dolomite
    - c. Alunite
    - d. Kaolinite
  6. Sudbury ore used for extraction of Nickel is its
    - a. oxide ore
    - b. Sulfide ore
    - c. sulfate ore
    - d. None of above
  7. Bronzes are mainly alloy of
    - a. Copper and zinc
    - b. Copper and tin
    - c. Copper and iron
    - d. Copper and Nickel
  8. Stainless steel is an alloy having
    - a. 18% Cr, 8 % Ni and rest Iron
    - b. 8 % Cr, 18% Cr and Rest Iron.
    - c. 50% Fe and 50% Cr and Ni

9. Which is most important ferroelectric ceramic ?  
 a. BaTiO<sub>3</sub>  
 b. CaSiO<sub>3</sub>  
 c. SiO<sub>2</sub>  
 d. Al<sub>2</sub>O<sub>3</sub>
10. Most glasses produced being belong to the category of  
 a. Soda glass  
 b. Patash glass  
 c. Borosilicate glass  
 d. Flint glass

Q.2 Answer in short Any Ten of the following. [20]

1. Write characteristics of metals.
2. Explain roasting giving examples.
3. Define slug, refining.
4. What are carbon steels ? State their types.
5. State important mineral ores of Aluminium
6. State important mineral ores of Silver.
7. Write commercial uses of silver & nickle.
8. List properties of materials for selection of engineering applications.
9. List important engineering material of construction.
10. What are the coloring ingredients of cement ?
11. Explain - Cement Ceramics.
12. Define Glass & state types of Glass.

Q.3

(a) Explain - ores, ore dressing, smelting, secondary metals. [10]

OR

(a) Write short notes on (Any One)

1. Alloys
2. Furnaces

Q.4 Discuss Hall Electrolytic cell process for manufacture of aluminum. [10]

OR

Q.4 Explain the steps involved in extraction of Nickle metal.

Q.5 Write short note on Alloys of Copper. [10]

OR

Q.5 Write short note on engineering materials of construction.

Q.6 Discuss about Any One [10]

- i. Portland Cement
- ii. Glass

OR

Q.6 What are refractory materials. State their types and uses. Discuss about Silica refractory.

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