

Ex/Che/ES/B/Met/T/222/2023

B.E. CHEMICAL ENGINEERING 2nd YEAR 2nd SEMESTER EXAM - 2023

Subject: Material Science and Engineering

Time : Three Hours

Full Marks: 100

Answer any five questions

- 20
- Q1. Draw and briefly describe the various unit processes involved in extraction of metals from oxide and sulphide ores.
- 20
- Q2. Briefly describe Bessemer converter process and L-D method of steel making with chemical reactions.
- 20
- Q3. Draw the schematic diagram of blast furnace and write the different chemical reactions take place in different parts of the blast furnace.
- 20
- Q4. Draw and briefly describe the flow sheet of copper extraction from its chief ore
- 10x2
- Q5. i) Define composite material with justification. Write the general requirements of a composite
ii) Draw the schematic illustration showing classification of composite and describe briefly
- 10x2
- Q6. i) Write the various characteristics of common metallic crystal
ii) State the various purposes of making alloys. Write the classification of alloys.
- 10x2
- Q.7 Short notes: any two
i) Nanostructured materials
ii) Ceramic materials
iii) Baeyer's process & Hall-Heroult process
iv) Various physical and mechanical properties of metals