Q1: Fill in the blanks with the suitable answers: (Answer 20 blanks) (20 marks)

1. The economy of extraction generally depend on factors such as ............... and ............... 
2. Primary crushing is done to reduce the particle size from ........... to ..........., while secondary crushing reduction from ............... to ............... 
3. Hydrometallurgy is ............... 
4. ............... and ............... are important ores of copper extraction. 
5. There are two methods for zinc extraction ............... and ............... 
6. Bauxite is Aluminum ore take the formula ............... 
7. Main applications of cast magnesium alloys are ............... and ............... 
8. Most important application of thorium in ............... 
9. ............... is the most important thorium ore which is (Ce,La,Nd,Th)PO₄ contain 3-5% thorium as a form of ............... 
10. Most important gold ore minerals are ............... and ............... 
11. Recycling advantages are ............... and ............... , while the problem of recycling is ............... 

Q2: Put (✓) or (✗), and then correct the false if it's found. (20 marks)

1. Metals those elements which are electrical conductors. 
2. Gravity separation is separation of metals according to their different shapes. 
3. Gold is corroded easily, due to its reactivity. 
4. Mines will use agitated leaching for high-grade ore & heap leaching for low grade ores. 
5. Smelting of copper include mixing Cu ore with coke and silica in blast furnace to produce high copper grade 99%. 
6. Blister copper is copper containing 99% percent and some impurities. 
7. Zinc used to coat steel to protect it from erosion at room temperature.
8. In the Hall-Heroult process for Al production the graphite cell lining is anode, while the carbon-pitch mixture electrode is the cathode.

9. Extraction of Magnesium is done using Dow process.

10. Can Densifier and flatteners are equipment used in MRF.

Q3: A) What is the difference between ore and Mineral? (20 marks)

B) Describe the concentration of copper ores using Froth-Floatation process with the aid of sketch?

Q4: A) Explain the causes for the following: (20 marks)

1. Cryolite addition to Hall-Heroult cell for Al-production.

2. Plastics types numbers 3, 6 & 7 are recycle with precautions.

B) What are the types of Waste Resources?

Q5: Describe briefly the Hall-Heroult process for Aluminum production with aid of sketch? (20 marks)

Q6: Describe briefly the Electrolytic Refining of Zinc with aid of flow chart and sketch. (20 marks)

--------------------GOOD LUCK------------------------