

(4)

Ex/MET/GEO/T/213/34/2011

11. a) Short notes : 15+5

- i) Selective flotation
- ii) Hydraulic classifier

b) Calculate the settling velocity in water of spherical floccules of 0.5 mm in dia. and containing 90% water.

Sp. Gravity of solid = 3000 Kg./m³

Viscosity of water μ = 0.01 poise

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BACHELOR OF METALLURGICAL ENGG. EXAMINATION, 2011
(2nd Year, 1st Semester)

GEOLOGY

Time : Three hours

Full Marks : 100

(50 marks for each part)

Use Separate Answer Script for each part.

PART – I

Answer question **1** and

any **three** from the rest

1. Write notes on (any **4**) 4x5 = 20

- a) Origin of the Earth.
- b) Internal structure of the Earth.
- c) Enantiomorphous and glide reflection
- d) Crystallographic axes and crystal systems
- e) Feldspar Group
- f) Gneissic texture and schistosity
- g) Characteristic features of sedimentary rocks.

2. Define velocity depth curve. Write major differences between the oceanic crust and the continental crust.

5+5 = 10

[Turn Over]

(2)

3. Explain with diagrams the types of rotoinversion operations. 10
4. What is the fundamental unit of the systematic mineralogy of silicates? How do you generate nesosilicate, sorosilicate, cyclosilicate, Ionosilicate and phyllosilicate using this fundamental unit? Write with diagrams and give examples. 1+9 = 10
5. Explain the sedimentary process of rock formation. Write the differences between chemical sedimentary rocks and terrigenous sedimentary rocks, write with examples. 4+6 = 10
6. What is ore? What is gangue? Write with examples. Write the chemical composition and use of following ore and industrial minerals : Galena, Magnesite, Olivine, Chromite, Sphalerite, Chalcopyrite, Garnet, Ilmenite, Magnetite, Jalc. 5+5 = 10
7. Explain the igneous process of rock formation. What is the difference between an extrusive igneous rock and an intrusive igneous rock; Write with examples. 4+6 = 10

(3)

PART – II

Answer question no. **8** and

any **two** from the rest

8. 2x5
- i) Distinguish between Laminar flow & Turbulent flow
 - ii) Distinguish between Set & Throw in a Jaw crusher
 - iii) Write the important factors on which the energy consumption in a jaw crusher is dependent.
 - iv) Distinguish between Angle of nip & Contact angle.
 - v) Distinguish between comminution & concentration.
9. Derive : 10+10
- a) i) Terminal velocity of fine particles.
 - ii) The condition required to ensure nip between a pair of rolls
- Describe :
- b) i) Basic Crushing plant Flow sheet
 - ii) Motion of a charge in a Ball Mill
10. a) Explain the mechanism of a common wilfley table
- b) Describe the different types of Screens. 8+12

[Turn Over]