

CSM : 17

GEOLOGY

PAPER - II

Time Allowed : 3 hours

Full Marks : 100

Marks for each question is indicated against it.

Attempt any 5 (five) questions taking not more than 3 (three) questions from each Part.

PART - A

1. (a) Write notes on **any two** of the following. **(5+5=10)**
 - (i) Physical properties of minerals based on interaction with light.
 - (ii) What are the different elements of symmetry in crystals?
 - (iii) Fundamental unit of silicate structure.

(b) Describe the symmetry elements and unit forms of the normal class of Tetragonal system. Mention the names of common minerals that crystallize in this class. **(10)**
2. What is eutectic crystallization? Explain the petrogenetic significance of the Diopside-Anorthite system. What are the reasons for formation of zoning in plagioclase? **(5+10+5=20)**
3. (a) Describe with neat diagram the types of metamorphism with respect to their position in plate tectonic settings with example. **(10)**

(b) Discuss the role of fluids in metamorphism. **(5)**

(c) What is the difference between porphyroblast, poikiloblast and porhyroclast? **(5)**
4. (a) How are sedimentary structures useful to establish the dynamics of deposition of sediments? **(10)**

(b) Discuss the evolution and characteristic features of the major sedimentary basins of India. **(10)**

PART - B

5. Define Mineral deposits. List the different processes responsible for the formation of mineral deposits. Elucidate ***any two*** of the following processes: **(2+8+10=20)**
- (a) Magmatic concentration process
 - (b) Pyrometasomatism
 - (c) Mechanical concentration process
6. Answer ***any five*** of the following: **(5×4=20)**
- (a) Principles of geological prospecting
 - (b) Seismic method of prospecting
 - (c) Geochemical prospecting
 - (d) Sampling and its types
 - (e) Estimation of ore reserve
 - (f) Shaft and its types
 - (g) Long wall methods of mining
 - (h) Ore Dressing
7. (a) Discuss briefly on the principles governing abundance of elements in the Universe. **(10)**
- (b) Add a note on compatible and incompatible trace elements. **(10)**
8. Write explanatory notes on the environmental effects of urbanization with reference to surface run-off, flooding and landslides. **(4+8+8=20)**

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