CSM : 24

GEOLOGY PAPER - II

Time Allowed : 3 hours | Maximum Marks : 100

QUESTION PAPER SPECIFIC INSTRUCTIONS

(Please read each of the following instruction carefully before attempting questions)

There are eight (8) questions - four (4) questions each in Part A & B. Each question carries 20 marks.

Marks for each question is indicated against it.

Compulsory questions :

(a) Question No. 1 from Part-A and

(b) Question No. 5 from Part-B

[Compulsory questions No. 1 & 5 have 4 (four) Sub-questions carrying 5 marks each.]

Total No. of questions to be attempted :

5 (five) questions.

[A candidate shall attempt 2 (two) compulsory questions from Part A and B. Out of the remaining 6 (six) questions, 3 (three) are to be attempted taking at least 1 (one) but not more than 2 (two) questions from each Part]

Word Limit:

(a) Compulsory questions carrying 5 marks shall have a limit of 150 words.

(b) There shall be no word limit for the remaining questions.

PART - A

1. Answer the following: **(4×5=20)**
   (a) Write a brief note on Miller indices.
   (b) Application of Trace and REE elements in petrogenesis.
   (c) What are the types of metasomatism?
   (d) What are the various methods used for the study of Provenance.

2. Illustrate diagrammatically the crystal system based on the crystallographic axes and symmetry elements. **(20)**

3. (a) Write about the Bowen's reaction series and its importance. **(10)**

   (b) Discuss the applications of ACF and AKF diagrams to represent metamorphic mineral assemblages. **(10)**

4. Explain the relationship between water flow velocity and grain size with the help of the Hjulstrom diagram. **(20)**

PART - B

5. Answer the following: **(4×5=20)**
   (a) Distribution of coal deposits in India.
   (b) Write the geological method of prospecting.
   (c) Define Enthalpy, Entropy and Gibb's free energy.
   (d) What are the causes of sea level change?

6. (a) Discuss the process of mineral benefication by froth flotation and its application for sulphide ores. **(10)**

   (b) List the primary ores of uranium. Discuss the origin, mode of occurrence and distribution of uranium deposits in India. **(2+8=10)**

7. (a) Discuss the various stages of mineral exploration and the expenditure versus risk from planning to mining stages. **(10)**

   (b) Discuss the role of chemical bonding in minerals in determining certain physical and chemical properties. **(10)**

8. (a) Discuss the sources of groundwater pollution and possible treatment methods. **(10)**

   (b) Write the importance of Seismic Design codes and its virtues. **(10)**

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