

2016

GEOLOGY-PAPER-II

Time Allowed : 3 Hours

Full Marks : 200

If the questions attempted are in excess of the prescribed number, only the questions attempted first up to the prescribed number shall be valued and the remaining ones ignored.

Answers may be written either in English or Bengali but all answers must be in one and the same language.

GROUP - A

Answer any three of the following questions.

1. (a) Describe briefly about different elements of symmetry present in a crystal. How does one proceed to assign a Hermann Manguin notation of a crystal from its symmetry element ? 20
 (b) What are isotropic, uniaxial and biaxial minerals ? How does one proceed to determine the optic sign of an uniaxial mineral ? 20
2. (a) Define phase, component, degree of freedom of a solid-liquid equilibrium system with suitable examples. Derive phase Rule. 20
 (b) State Bowen's Reaction Series and discuss its significance in diversification of igneous rock. 20
3. (a) Discuss briefly about different agents of Metamorphism and state important types of metamorphism and their corresponding agents. 20
 (b) Define metamorphic facies and give an outline of classification of metamorphic rocks based on metamorphic facies. 20
4. (a) Discuss with suitable sketches about four primary sedimentary structures and comment on origin and significance of any two primary sedimentary structures. 20
 (b) Define terrigenous and chemogenic sediment. Give an outline classification of terrigenous sedimentary rock. 20
5. (a) Describe briefly about two Ore forming processes. What are raw materials of cement and Iron & Steel Industry ? 20
 (b) Define Earthquake. What are principal causes of Earthquake ? How does deforestation affect environment ? 20

GROUP - B

Answer any two of the following questions.

5. Write notes on any four :-

- (a) Concordant and discordant intrusion with suitable examples and sketches for any two.
- (b) Pleochroism and process of determination of pleochroic scheme.
- (c) Liquidus and solidus surface ; eutectic and peritectic crystallization.
- (d) Twinning in crystal.
- (e) Thermal metamorphism of limestone
- (f) Refractory materials and their uses. 10 x 4

P.T.O.

7. (a) Describe fluoride pollution in ground water and its effect on human body. 20
- (b) State Proximate and Ultimate analysis of Coal. 20
8. (a) Discuss important sedimentary facies association of fluvial and deltaic environment. 20
- (b) State different types of Si - O linkage observed in common silicate minerals with suitable example. 20

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