

C.S.E. (MAIN) – 2003 GEOLOGY

PAPER - I

*Time Allowed: Three Hours*

*Maximum Marks: 300*

**Candidates should attempt Questions 1 and 5 which are compulsory and remaining any THREE questions selecting at least ONE from each Section.**

**SECTION A**

1. Answer any three of the following, each within 200 20 X 3 = 60
  - (a) How do structure, climate, topography and vegetation influence rocks in nature?
  - (b) Mantle of the earth.
  - (c) Significance of Remote Sensing in small mining industry.
  - (d) *DifferenIiate* between the following pairs:
    - (i) Dome and basin
    - (ii) Horst and graben
    - (iii) Overthrust and underthrust faults
    - (iv) Hanging wall and footwall
2. Discuss the significance and mechanism of sea-floor spreading. 60
3. Describe the following: 30 X 2 = 60
  - (a) Drainage patterns of Indian Sub-continent
  - (b) Advantages of photo-geology over conventional geological survey.
4. Define unconformity and describe its various types. How tan they be recognized in the field? 60

**SECTION B**

5. Answer any three of the following, each within 200 words: 30 X 2 = 60
  - (a) Pleistocene glaciation
  - (b) Role of geologists in the construction of bridge
  - (c) Role of microfossils in correlation of rock formations
  - (d) Describe the morphology of Gastropoda shelf.
6. Discuss the evolutionary changes in the morphology of Ammonoids. 60
7. Describe the following: 30 x 2 = 60
  - (a) Principles of stratigraphic correlation
  - (b) Significance of glossopteris and ptylophyllum in the study of Gondwana System.
8. Discuss the following: 30 X2 = 60
  - (a) Importance of rain water harvesting for living beings
  - (b) Precautions in construction of buildings in earthquake-prone zones.

**PAPER - II - 2003**

*Time Allowed: Three Hours*

*Maximum Marks: 300*

**Candidates should attempt Questions 1 and 5 which are compulsory and remaining any THREE questions selecting at least ONE from each Section.**

**SECTION A**

1. In about 200 words each, explain any three of the following:
  - (a) Double refraction and birefringence 20
  - (b) Textures in volcanic rocks: petrogenetic significance 20
  - (c) Retrograde metamorphism: the assemblage minerals, textures and their significance 20
  - (d) Ripples, Dunes and cross-breeding: origin and significance 20
2. Describe the chemical composition, physical properties and mode of occurrence of Phosphate group of minerals. 60
3. Write explanatory notes on the following:
  - (a) Carbonatites; their mode of occurrence, petrography and petrogenesis. 30
  - (b) Granulite terrains of India: their mineral assemblages and petrogenetic characteristics. 30
4. Define provenance and its importance in Sedimentology. Describe the provenance indicators to identify different source rocks. 60

**SECTION B**

5. In about 200 words each, write notes on any three of the following:
  - (a) Stratabound and stratiform deposits: characteristics and examples. 20
  - (b) Heavy media separation as ore-dressing process 20
  - (c) Isomorphism and isomorphous mixture, examples. 20
  - (d) Fertilizers/and their impact on groundwater pollution
6. Write notes on the following, in brief:
  - (a) Pyrometasomatic deposits: their genesis and general characteristics. 30
  - (b) Placer deposits of thorium in India: their geological setting and mode of occurrence 30
7. Describe the methods of geological prospecting giving their applications and limitations. Add a note on geobotanical prospecting methods. 60
8. Write notes on the following, in brief:
  - (a) Goldschmidt's geochemical classification of the elements with examples. 30
  - (b) Legislative measures for environmental protection in India. 30