Civil Services (Main) Examination, 2003

GEOLOGY
(Paper II)

Time Allowed : Three Hours **Maximum Marks : 300**

QUESTION PAPER SPECIFIC INSTRUCTIONS

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

There are EIGHT questions divided in two Sections.
Candidate has to attempt FIVE questions in all.
Question Nos. 1 and 5 are compulsory and out of the remaining, any THREE are to be attempted choosing at least ONE question from each Section.
The number of marks carried by a question/part is indicated against it.
Wherever any assumptions are made for answering a question, they must be clearly indicated.
Word limit in questions, wherever specified, should be adhered to.

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-bedding: 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 **20**

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**

English version compiled from published transcriptions and cross-checked across sources; not a facsimile of the official UPSC question paper.

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