GEOLOGY
Paper I

| Time Allowed : Three Hours | Maximum Marks : 200 |

INSTRUCTIONS

Candidates should attempt SIX questions in all including Question No. 1, which is compulsory, from Part – I and attempt ONE question each from Sections A, B, C, D and E from Part – II.

The number of marks carried by each question is indicated against each.

Answers must be written only in ENGLISH.

Symbols and abbreviations are as usual.

Neat sketches may be drawn to illustrate answers, wherever required.

(Contd.)

Part – I

1. Define any *ten* in 3 to 4 sentences each :

$5 \times 10 = 50$

(a) Tool marks

(b) Outliers

(c) Composition of the Earth's core

(d) Stable Isotopes

(e) Refraction cleavages

(f) Magnetic anomaly

(g) Trace Fossils

(h) Disconformity

(i) Virtual Fixation Point

(j) Seismograph

(k) Nektons

(l) Equal Area Projection

Part – II

Section – A

2. Describe a typical desert scenery and discuss the evolution and migration of sand dunes.   30

3. Differentiate between : $6 \times 5 = 30$

(a) Aerial Photographs and Satellite Imagery

(b) Topographic Maps and Geological Maps

(c) LANDSAT and IRS Missions

(d) Bhangar and Khadar Soils

(e) KARST topography and Glaciated topography

Section – B

4. Discuss the principle involved in : $10 \times 3 = 30$

   (a) Construction of projection diagrams

   (b) Analysis of structural deformation

   (c) Salt Dome tectonics

5. Write illustrated notes on : $10 \times 3 = 30$

   (a) Balanced cross-section

   (b) Importance of down-dip lineation

   (c) Origin of reclined folding

Section – C

6. Discuss the story of transformation of the "Global Tectonics Hypothesis" into the "Theory of Plate Tectonics". Discuss the events in chronological order. $20 + 10 = 30$

7. Write short notes on : $10 \times 3 = 30$

   (a) Island Arcs

   (b) Theory of Isostasy

   (c) Gravity anomaly

D-FDN-K-HA   3   (Contd.)

Section – D

8. Discuss the merits and demerits of the International code of Stratigraphic Nomenclature. Give Indian examples to illustrate your answer.   20+10=30

9. Write brief notes on :   10×3=30

    (a) Proterozoic-Cambrian Stratigraphic boundary stratotype

    (b) Origin of Siwalik foreland basin

    (c) Deccan Lava in 'Gondwanaland'.

Section – E

10. Discuss the objections raised against Darwin's Theory of Evolution. Explain the concept of the punctuated evolution.   15+15=30

11. Discuss the stratigraphic importance of :   6×5=30

    (a) *Cardita beaumonti*

    (b) *Ptilophyllum* Flora

    (c) *Cruziana* sp.

    (d) *Productus rajah*

    (e) *Syringothyris cuspidata*

    (f) *Globotruncana*