

S.No. 2559

D-FDN-K-HA

## 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 :

5×10=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 : 6×5=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 : 10×3=30
- (a) Construction of projection diagrams
  - (b) Analysis of structural deformation
  - (c) Salt Dome tectonics
5. Write illustrated notes on : 10×3=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 : 10×3=30
- (a) Island Arcs
  - (b) Theory of Isostasy
  - (c) Gravity anomaly

### 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*