

IFS 2001 GEOLOGY

PAPER-I

SECTION A

1. Write critical notes, within 150 words each, on any four of the following:

(a) Magnitude of an earthquake

(10)

(b) Importance of the study of meteorites

(10)

(c) Syntectonic crystallization

(10)

(d) Drainage patterns

(10)

(e) Criteria for determining the top and bottom of the beds

(10)

2. Discuss how seismic studies help in knowing the interior of the earth.

(40)

3. (a) Give the geomorphic classification of the Indian subcontinent.

(20)

(b) Discuss the application of Remote Sensing to geological investigations.

(20)

4. Describe each of the following with examples:

(a) Strike-slip fault

(10)

(b) Mineral Lineation

(10)

(c) Graben

(10)

(d) Joints

(10)

SECTION B

5. Write critical notes, within 150 words each, on any four of the following:

(a) Modes of preservation of fossils

(10)

(b) Causes of landslides

(10)

(c) Singhbhum Shear Zone

(10)

(d) Neogene-Quaternary boundary

(10)

(e) Salt water intrusion in coastal areas

(10)

6. Discuss the evolutionary trends in Cephalopoda. Give the geologic history of ammonoids.

(40)

7. (a) Give a stratigraphic palaeontologic and palaeogeographic account of the rocks of the Vindhyan Supergroup.

(20)

(b) How are transgressions and regressions of sea reflected in the stratigraphic column?

(20)

8. Discuss with examples:

(a) Types of dams

(20)

(b) Rainwater harvesting

(20)

PAPER-II

SECTION A

1. In about 150 words each, answer any four of the following:

(a) Give an account of elements of symmetry that help to derive all the thirty-two classes of crystal systems.

(10)

(b) Define dispersion and describe types of dispersion displayed by crystals of monoclinic system with neat sketches.

(10)

(c) Enumerate the Pyroxene group of minerals with their general chemical compositions and describe briefly the diagnostic optical properties of clinopyroxenes.

(10)

(d) Give an account of petrogenetic significance of important inequigranular textures of igneous rocks with suitable examples and neat sketches.

(10)

(e) Give an account of significance of Heavy minerals in sedimentary rocks.

(10)

2. Briefly describe the following:

(a) Symmetry classes of Tetragonal system

(14)

(b) Twinning in feldspars

(12)

(c) Chemical compositions and optical and physical properties of Mica group of minerals.

(14)

3. Describe briefly the following:

(a) Crystallization of Anorthite-Diopside system mentioning the common textures developed by the resultant rocks with suitable example

(14)

(b) Facies of regional dynamothermal meta morphism

(13)

(c) Petrography and Petrogenesis of Charnockites of South India.

(13)

4. Give brief accounts of the following:.

(a) Diagenesis and lithification

(13)

(b) Classification and depositional environments of Clastic rocks of sediments.

(14)

(c) Sedimentary basins of India and their economic importance.

(13)

SECTION B

5. In about 150 words each, give accounts of any four of the following:

(a) Controls of ore localization

(10)

(b) Processes of formation of magmatic ore deposits

(10)

(c) Techniques of different types of sampling

(10)

(d) Composition of Meteorites

(10)

(e) Environmental impact of Open-cast mining

(10)

6. Give brief accounts of the following:

(a) Geology and ore-genesis of Lead-Zinc deposits of Rajasthan

(14)

(b) Petroleum deposits of North-East India

(13)

(c) Marine mineral resources of India

(13)

7. Briefly describe the following:

(a) Geophysical Methods of Prospecting of Base-metals

(14)

(b) Methods of Estimation of Ore Reserves

(13)

(c) Methods of Mining of Bedded Deposits

(13)

8. Give accounts of the following in brief:

(a) Structure and Composition of the Earth

(14)

(b) Types of Chemical Bonds

(12)

(c) Earthquakes as natural hazards, causes, effects and mitigating measures

(14)