IFS 2003 GEOLOGY PAPER I

SECTION A

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

(a) Core of the Earth

(10)

(b) Deep sea trenches

(10)

(c) Geographic cycle

(10)

(d) Satellite data products

(10)

(e) Nappe

(10)

2. (a) Volcanism is a manifestation of plate tectonic processes. Justify.

(b) Bring out the salient features of the Aerial photo interpretation.

4. Differentiate between the following:

(a) Horst and graben

(10)

(b) Paraconformity and discomformity

(10)

(c) Stress ellipsoid and strain ellipsoid

(10)

(d) Inlier and outlier

(10)

SECTION B

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

(a) Different kinds of microfossils

(10)

(b) Palaeontological findings in the Vindhyans

(10)

(c) Son-Narmada Geofracture

(10)

(d) Ground-water management

(10)

(e) Mechanical properties of rocks for engineering geology.

(10)

6. Describe the morphology of a trilobite with neat sketches. Add notes on the geological history of trilobites.

(40)

7. (a) Briefly describe the Cretaceous stratigraphy of Tiruchirapalli region adding notes on its economic potentiality.

(20)

(b) Throw light on the palaeogeography and palaeoclimate of the Permian period in Indian stratigraphy.

(20)
8. (a) What is the importance of hydrogeology ? What are the various methods of ground-water exploration?
(20)
(b) Describe the causes of Landslides and discuss their preventive measures.
(20)

PAPER - II

SECTION A
1. In about 150 words each, answer any four of the following:
(a) How are the projection diagrams used to represent crystal symmetry?
(10)
(b) Essential and accessory minerals of Charnockite and Carbonalite
(10)
(c) Characters of migmatites and granulites
(10)
(d) Sedimentary structures and their significance
(10)
(e) Retrograde metamorphism
(10)
2. Describe the processes of magmatic crystallization and assimilation. Illustrate your answer with examples from ultrabasic rocks and alkaline rocks.
(40)
3. Write detailed notes on the following giving suitable examples and diagrams:
(a) Pleochroism and extinction angles in the amphibole group of minerals
(10)
(b) Structural classification of silicates.
(10)
(c) Use of ACF and AKF diagrams in metamorphic petrology
(10)
(d) Deccan volcanic province
(10)
4. Name some common non-elastic sedimentary rocks. Write in details about their occurrence, petrography, classification and depositional environment.
(40)
SECTION B
5. Attempt any four answering in about 150 words each:
(a) Environmental impact of indiscrete disposal of radioactive waste.
(10)
(b) Deposits of petroleum in India.
(10)
(c) Methods of exploration in metallic ores.
(10)
(d) Incidence of floods and landslides in India.
(10)
(e) Estimation of ore reserves of bauxite (Aluminium).
(10)
6. Write an essay on the cosmic abundance of elements. Illustrate your answer by discussing the composition of the earth and the meteorites.

(40)
7. Write detailed notes on the following, giving suitable examples:
(a) Chemical bonding, coordination numbers, isomorphism and polymorphism in minerals.
(10)
(b) Pollution of surface water resources in India.
(10)
(c) Sampling techniques and estimation of reserves of ore.
(10)
(d) Indian deposites of aluminium and copper.
(10)
8. Write brief notes on:
(a) Ore textures and structures.
(10)
(b) Indian deposites of uranium and thorium,
(10)
(c) Mineral beneficiation and ore-dressing.
(10)
(d) Structure and internal composition of earth.
(10)