IFS 2004 GEOLOGY PAPER I

SECTION A
1. Write critical notes, within 150 words each, on any four of the following :
(10 × 4 = 40)
(a) Earthquake belts
(b) Interpretation of geomorphic cycles
(c) Electromagnetic spectrum
(d) Stress eilipsoid
(e) Superposed deformation
2. What do you understand by the term isostasy? Describe the geological processes that lead to isocratic imbalances.
(40)
3. Discuss
(a) Role of geomorphology in mineral prospecting
(20)
(b) Application of remote sensing in geology.
(20)
4. Discuss the nomenclature of folds based on attitudes of fold axes and axial planes.
(40)
SECTION B
5. Write critical notes, within 150 words each, on any four of the following:
(10 x 4 = 40)
(a) Natural selection.
(b) Facies concept in stratigraphy.
(c) Artificial groundwater recharge.
(d) Significance of microfossils in oil exploration.
(e) Geological factors of relevance in the construction of bridges.
6. Discuss the evolutionary trends in Ammonoids and their utility in biozonation and correlation of strata.
(40)
7. Explain
(a) Chronostratigraphic classification
(20)
(b) Triassic system of Spiti
(20)
8. Discuss
(a) Classification of aquifers
(20)
(b) Geological considerations in relation to selection of construction material.
(20)

PAPER - II

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

(10 x 4 = 40)
(a) Define current structures. How various current structures are formed?
(b) Discuss Dunham's classification of carbonates.
(c) Bowen's reaction series.
(d) Metamorphism of pelitic sediments.
(e) Becke's effect and Birefringence.
2. Write brief notes on
(a) Covalent bond.
(10)
(b) 4/m 2/m 2/m
(10)
(c) Pseudo-morphism.
(10)
(d) Olivine series.
(10)
3. Write notes on
(a) Binary magma crystallization.
(10)
(b) Criteria used for igneous rock classification.
(10)
(c) Metamorphic textures.
(10)
(d) Regional metamorphism of basic igneous rocks.
(10)
4. Discuss in detail about Gondwana basin of India, with special reference to the depositional environments and their economic importance.
SECTION B
5. Attempt any four, answering in about 150 words each : (10 x 4 = 40)
(a) Phase Rule.
(b) Khetri copper deoposits.
(c) Principles of Gravity method of exploration.
(d) Froth floatation.
(e) Endogenetic processes as environmental hazards.
6. Write notes on:
(a) Weathering processes of mineral formation.
(10)
(b) Controls of mineralization.
(10)
(c) Lignite deposits of India.
(10)
(d) National mineral policy.
(10)
7. Write a detailed account on the various methods used in underground mining, with special reference to coal
(40)
8. Write brief notes
(a) Coordination principle.
(10)
(b) Composition of Mantle and its various layers.

(10)
(c) Industrialization and water pollution.
(10)
(d) Environmental consequences of urbanization.
(10)