

Geology

Paper -II

Time allowed : Three hours

Maximum Marks: 300

The figures in the margin indicate full marks for the questions

Candidates should answer Question Nos. **1** and **5** which are compulsory and any **three** of the remaining questions, selecting at least **one** from each Section

SECTION-A

1. Write on any **three** of the following in about 200 words each : 20x3=60
 - a. Hexagonal System
 - b. Crystal Twinning
 - c. Silicate Structure
 - d. Rock Cycle

2. a. Write in detail on Crystallisation of Albite-Anorthite system. 30x2=60
b. What is Magmatic Differentiation and Assimilation?

3. a. What is sedimentation process? Describe clastic and non-clastic rocks and their classification 30x2=60
B. What is facies? Describe facies of regional and contact metamorphism

4. Describe in brief - Any **Three** 20x3=60
 - a. Optical properties of minerals
 - b. Charnokite rock
 - c. Textures & Structures of Igneous rocks
 - d. Metamorphic Agents

P.T.O.

SECTION-B

5. Write on any **three** of the following in about 200 words each: 20x3=60
 - a. Controls of ore localisation
 - b. Geology of Indian deposits of Chromium
 - c. Mineral Beneficiation
 - d. Environmental impact of Open cast mining
6. Give Geophysical prospecting methods of minerals exploration 60
7. Write in short: 30x2=60
 - a. Metallogenic epochs and provinces
 - b. Landslide hazard and its measures
8. Write about the following: 30x2=60
 - a. Trace elements
 - b. Chemical composition of earth and its distribution

Geology

Paper -I

Time allowed : Three hours

Maximum Marks: 300

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Candidates should answer Question Nos. **1** and **5** which are compulsory and any **three** of the remaining questions, selecting at least **one** from each Section

SECTION-A

1. Write on any **three** of the following in about 200 words each : $20 \times 3 = 60$
 - a. Isostasy Theory and its importance on earth
 - b. Intensity and Magnitude of an earthquake
 - c. Internal structure of earth
 - d. Continental drift theory
2. a. Write briefly about weathering and its various processes $30 \times 2 = 60$
b. Drainage patterns with illustrations
3. a. What is Darcy'Law. An aquifer is 2032 wide and 27 m tall. Its hydraulic gradient is .05 and its hydraulic conductivity is 147m/day. Calculate the velocity of the groundwater as well as the amount of water that passes through the end of the aquifer each day if the porosity of the aquifer is 32%. $30 \times 2 = 60$
b. Describe the mechanism of Faulting.
4. Describe in brief-Any **Three** $20 \times 3 = 60$
 - a. Orbital parameters of Cartosat II
 - b. Spatial and Spectral Resolution
 - c. Interpretation Keys
 - d. Raster and Vector data

P.T.O.

SECTION-B

5. Write on any **three** of the following in about 200 words each:
 - a.. Gondwana Flora and its importance 20×3=60
 - b. Evolutionary trend in Trilobita
 - c. Earthquake resistance structures
 - d. Water bearing characteristics of Rocks

6. Give the Chronostratigraphic classification of Stratigraphic Sequences and its interrelationship with Lithostratigraphic units. 60

7. Write in short: 30×2=60
 - a. Microfossils and their importance in petroleum exploration
 - b. Earthquakes, their causes and prevention

8. Write about the following: 30x2=60
 - a. Rainwater Harvesting Techniques
 - b. Stratigraphic distribution of Vindhyan Supergroup