2021

(July)

GEOLOGY

(Honours)

[Applied Geology (Exploration Mining and Engineering Geology)]

(GELH–603)

Marks : 56

Time : 3 hours

The figures in the margin indicate full marks for the questions

Answer **four** questions, selecting **one** from each Unit

UNIT—I

(Exploration Techniques)

1. *(a)* Define sampling. Explain any four sampling techniques. 1+8=9

(b) Write a note on core drilling. 5

2. Write short notes on any *four* of the following : 3½×4=14

(a) Reconnaissance survey

(b) Concept of geological exploration

(c) Directional drilling

(d) Importance of drilling in mineral exploration

(e) Drill bit

UNIT—II

(Geochemical Exploration and Geophysical Methods)

3. *(a)* List the various methods of electrical survey. Explain either self-potential method or equipotential line method of electrical survey. 2+7=9

(b) Explain the concept of geochemical exploration. 5

4. Write short notes on any *four* of the following : 3½×4=14

(a) Radioactive survey

(b) Variations in earth's magnetic field

(c) Bouguer correction

(d) CDP method of seismic survey

(e) Background and geochemical anomaly

UNIT—III

(Mining Geology)

5. *(a)* Explain the room-and-pillar method of coal mining with a neat sketch. 8

(b) Write a note on opencast mining. 6

6. Write short notes on any *four* of the following : 3½×4=14

(a) Glory hole mining

(b) Shaft

(c) Drive, level and adit

(d) Mine development

(e) Advantages of underground mining

UNIT—IV

(Engineering Geology)

7. *(a)* Define landslides. Explain briefly the major causes of landslides. 1+8=9

(b) Write a note on grouting. 5

8. Write short notes on any *four* of the following : 3½×4=14

(a) Problems in tunnelling

(b) Arch dams and gravity dams

(c) Alignment of roads

(d) Tunnel linings

(e) Dam stability

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