2023

(May/June)

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)* What is geological prospecting? What are the stages of geological prospecting? Write briefly on any four guides that geologists may use as indicators of mineral deposits for further investigations. 2+2+5=9

(b) List the types of drilling. Explain any one of them in detail. 1+4=5

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

(a) Sampling

(b) Channel sampling method

(c) Reconnaissance survey

(d) Role of drilling in geological exploration

(e) Development of a mineral deposit

(f) Core drilling

UNIT—II

(Geochemical Exploration and Geophysical Methods)

3. (a) What is geochemical prospecting? Explain geochemical anomaly and interpretation of geochemical anomalies. 2+7=9

(b) Write a note on the principles of seismic survey. 5

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

(a) Bouguer correction

(b) Correction factors applied in seismic reflection survey

(c) Wenner and Schlumberger method of field survey for resistivity data

(d) Radioactive survey

(e) Pathfinder elements

(f) Interpretation of magnetic survey data

UNIT—III

(Mining Geology)

5. (a) Explain the longwall method of coal mining. Draw a suitable sketch. 8+1=9

(b) What are the disadvantages of opencast and underground mining? 5

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

(a) Advantages of opencast and underground mining

(b) Mine development

(c) Glory hole mining

(d) Raise and winze

(e) Stope

(f) Level

UNIT—IV

(Engineering Geology)

7. (a) Explain the feasibility of tunnelling in folded rocks. Draw suitable sketches to supplement your answer. 7+1=8

(b) Explain the various processes of mitigation of landslides. 6

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

(a) Compressive strength of rocks

(b) Types of dams

(c) Slope stability

(d) Causes of landslides

(e) Alignment of roads

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