2022

(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 sampling? List the equipments used during sampling of geological materials. Explain the channel sampling method with a sketch. 1+2+6=9

(b) Write a short note on the importance of drilling during geological exploration. 5

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

(a) Reconnaissance survey

(b) Concept of geological exploration

(c) Core drilling

(d) Advantages and disadvantages of percussion drilling

(e) Bulk sampling

(f) Aim and significance of detailed geological mapping

UNIT—II

(Geochemical Exploration And Geophysical Methods)

3. *(a)* What is the principle of magnetic survey? Write a brief note on the correction factor applied to magnetic data acquired in the field. 3+7=10

(b) Write a note on geochemical anomaly. 4

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

(a) Application of seismic surveys

(b) Types of geochemical survey

(c) Pathfinder elements

(d) Scheme of field operations during seismic survey

(e) Principle of equipotential line method of survey

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

UNIT—III

(Mining Geology)

5. *(a)* Explain the room-and-piller method of coal mining. Draw a suitable sketch. 7+1=8

(b) What are the advantages of opencast and underground mining? 3+3=6

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

(a) Hydraulic mining

(b) Retreat longwall mining

(c) Underground mining

(d) Level, cross-cut, raise and winze

(e) Exploitation and development of mines

(f) Shafts

UNIT—IV

(Engineering Geology)

7. *(a)* Explain how the attitude of sedimentary rock strata affect dam stability. Draw neat sketches. 7+1=8

(b) Write a note on how rocks built along strikes of rocks affect its safety. Draw neat sketches. 6

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

(a) Tunnelling along fold axis

(b) Slope stability

(c) Uniaxial compressive strength of rocks

(d) Grouting

(e) Methods of withdrawal of water in preventing landslides

(f) Types of dams

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