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5 SEM TDC GEOH (CBCS) C 11

2024

(November)

GEOLOGY

(Core)

Paper : C–11

(Surveying and Engineering Geology)

Full Marks : 53

Pass Marks : 21

Time : 3 hours

The figures in the margin indicate full marks for the questions

UNIT—I

(Introduction to Surveying)

(*Marks* : 10)

1. Define any *three* of the following : 1×3=3

(a) Azimuth

(b) Bearing

(c) Reduced Level

(d) Geoid

2. Differentiate between geodetic and ellipsoidal surface. 2

3. Describe the types of plane surveying with examples of their uses. 5

UNIT—II

(Plane Surveying)

(*Marks* : 15)

4. Differentiate between closed and open types of traverse. Write their applications. 3+2=5

5. Write the procedure, instruments needed and data collection system in compass traverse method. Use suitable diagrams to explain. 5

6. Give a justification for the use of EDM and GPS in modern surveying techniques. Write the principle used in GPS technology. 5

UNIT—III

(Levelling)

(*Marks* : 10)

7. Choose the correct one : 1×5=5

   (a) Which of the following is not a levelling method?

   (i) Spirit levelling

   (ii) Trigonometric method

   (iii) Barometric levelling

(b) Line of sight is also called as

(i) horizontal axis

(ii) line of collimation

(iii) vertical axis

(c) Staff is used to

(i) measure length

(ii) measure height

(iii) establish control point

(d) Which of the following errors in levelling can be eliminated by taking reciprocal readings?

(i) Refraction error

(ii) Curvature of the earth error

(iii) Collimation error

(e) A benchmark is

(i) temporary reference point

(ii) permanent reference point of known elevation

(iii) levelling instrument

8. Give a descriptive overview on the types of levels. 5

UNIT—IV

(Introduction to Engineering Geology)

(*Marks* : 10)

9. There are various types of rocks that are often used as building materials. List ten such rock types and mention their suitable uses. ½×10=5

10. What sort of planning and designing is required by field geologist to execute major projects like dam or tunnel construction? 5

UNIT—V

(Geotechnical Ideas about Engineering Structures)

(*Marks* : 8)

11. How are rock mass properties assessed, and why is this information crucial for underground construction projects? 4

12. Why are foundation treatments required? Mention the methods of foundational treatment. Briefly explain the significance of Q-index. 4

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