CBCS SCHEME

Third Semester B.E. Degree Examination, June/July 2024
Earth Resources and Engineering

Time: 3 hrs.   Max. Marks: 100

Note: *Answer any FIVE full questions, choosing ONE full question from each module.*

Module-1

1   a. What is geology? Explain the importance of geology in the field of civil engineering. **(10 Marks)**
    b. With a neat sketch, explain the details of internal dynamics of earth. **(04 Marks)**
    c. What is seismogram? Explain the working principle of seismograph with neat labelled sketch. **(06 Marks)**

OR

2   a. What is an earthquake? Write a brief note on earthquake resisting structure. **(06 Marks)**
    b. What are landslides? Mention factors responsible for landslides. Add a note on its preventive measures. **(08 Marks)**
    c. Define volcano. Explain the causes of it. **(06 Marks)**

Module-2

3   a. Define mineral. Explain briefly rock forming and ore forming minerals. **(06 Marks)**
    b. Explain Moh's scale of hardness. **(06 Marks)**
    c. Describe the minerals with respect to their engineering properties :
        i) Orthoclase   ii) Calcite   iii) Gypsum   iv) Asbestos **(08 Marks)**

OR

4   a. Describe physical properties of minerals :
        i) Form   ii) Hardness   iii) Fracture   iv) Clearage. **(08 Marks)**
    b. Explain the classification of metamorphic rocks with neat sketches based ion foliation structure. **(06 Marks)**
    c. Write short notes on the following :
        i) Railway Ballast
        ii) Selection of rocks are material of construction. **(06 Marks)**

Module-3

5   a. Write a note on soil profile with neat sketch. **(06 Marks)**
    b. What is weathering? Describe physical and chemical weathering. **(07 Marks)**
    c. Write a note on selection of site for artificial recharge. **(07 Marks)**

OR

6   a. What is river morphology? Write the factors controlling channel development. **(05 Marks)**
    b. Write short notes on morphemetric analyses of river basin. **(08 Marks)**
    c. What is an idea behind interlinking of rivers? Add its benefits. **(07 Marks)**

Module-4

7 a. Three bore hole sunk at equilateral triangle whose sides are 480m each. P is west of Q, and R is north of midpoint PQ. The bore hole PQR reaches upper surface of rich coal seam at 100m, 220m and 260m respectively.
   i) Determine the altitude
   ii) Another bore hole is sunk at 'S' midpoint of QR. Determine at what depth the bore hole 'S' reaches the same coal seam. **(10 Marks)**
   b. Define fold, with relevant sketch, explain its parts with types of folds. **(10 Marks)**

OR

8 a. Explain with neat sketch, ground water investigation by Electrical resistivity method. **(06 Marks)**
   b. A bed of shale is dipping maximum of 32° along SE. Find its inclineaiton along S80°E and its strike direction. **(08 Marks)**
   c. Write the difference between fault and joint. **(06 Marks)**

Module-5

9 a. Define topography and contour map. **(04 Marks)**
   b. What is remote sensing? Write its principles on which it works. Write its applications in civil engineering. **(09 Marks)**
   c. What is photogrammetry? Write its objectives. **(07 Marks)**

OR

10 a. Define GIS. Explain its components and application. **(10 Marks)**
    b. Describe the application of GPS (Global Positioning System). **(05 Marks)**
    c. A camera having focal length of 20cm is used to take a vertical photograph to a terrain having an average elevation of 1600m. What is height above MSL at which on air craft must fly in order to get photograph at a scale of 1 : 10000. **(05 Marks)**

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