



CBCS SCHEME

USN

--	--	--	--	--	--	--	--	--	--

21CV34

Third Semester B.E. Degree Examination, Jan./Feb. 2023 Earth Resources and Engineering

Time: 3 hrs.

Max. Marks: 100

- Note: 1. Answer any FIVE full questions, choosing ONE full question from each module.
2. Write neat sketches wherever necessary.*

Module-1

- 1 a. Explain the scopes and role of Earth Science in civil engineering. (06 Marks)
b. Discuss the causes of earthquake and add a note on earthquake resistant structure. (08 Marks)
c. What is plate tectonics? Explain different types of plate boundaries. (06 Marks)

OR

- 2 a. Explain causes, effects of volcanoes and its types. (05 Marks)
b. What is landslide? Explain the causes and its remedial measures. (10 Marks)
c. What is Tsunami? Explain the causes and add a note on methods of mitigation. (05 Marks)

Module-2

- 3 a. Define a mineral. With suitable examples, explain classification of minerals. (04 Marks)
b. Describe the following minerals for its physical properties, occurrences and industrial uses.
i) Quartz ii) Gypsum iii) Magnetite (12 Marks)
c. What are the qualities or index properties of rocks for civil engineering projects? (04 Marks)

OR

- 4 a. What is an aquifer? Explain water bearing properties of an aquifer. (06 Marks)
b. Describe the following rocks for its geological / physical and engineering properties and its suitability as building material:
i) Granite ii) Lime Stone (08 Marks)
c. Explain different types of Textures in the igneous rocks. (06 Marks)

Module-3

- 5 a. What is weathering? Briefly explain types of Chemical weathering and its impact on monumental rocks. (06 Marks)
b. Explain soil profile and add a note on geological classification. (08 Marks)
c. What is a dam? Explain different types with examples and criteria for selection of site for dam construction. (06 Marks)

OR

- 6 a. What is the concept of interlinking of river? Add a note on its benefits and environmental impact. (06 Marks)
b. Explain silting in Dam / Reservoir and its control. (08 Marks)
c. What are the criterias for selection of sites for artificial recharge? (06 Marks)

Module-4

- 7 a. Explain the principle of Electrical resistivity method and with neat sketch describe the function of Resistivity meter. (06 Marks)

Important Note : 1. On completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages.
2. Any revealing of identification, appeal to evaluator and /or equations written eg, 42+8 = 50, will be treated as malpractice.

- b. Explain the recognition of folds and faults in field and list their importance in civil engineering project. (08 Marks)
- c. A bed of shale is dipping maximum of 32° along $S45^\circ E$. Find the amount of its apparent dip along $S80^\circ E$ and state the strike. Write the procedure (Solve by Graphical / Trigonometric method). (06 Marks)

OR

- 8 a. Explain seismic method and its application in civil engineering. (06 Marks)
- b. List and explain ground improvement techniques. (06 Marks)
- c. Three test boreholes (X, Y and Z) drilled in a dry tank bed at three points of an equilateral triangle whose sides are 450m each. The point 'X' is west of 'Y' and the point 'Z' is north of mid point between X and Y. The boreholes X, Y and Z intersects a limestone bed at a depth of 20m, 110m and 170m respectively. Determine
- i) The attitude (Dip and Strike) of the Limestone bed
- ii) Another borehole (P) is prosed exactly at mid point of Y and Z. Determine at what depth, the new borehole meets the upper bedding plane of the Limestone bed. (08 Marks)

Module-5

- 9 a. Discuss the principle of Remote Sensing and its application in Civil Engineering. (08 Marks)
- b. Explain flight planning for taking aerial photos. (08 Marks)
- c. Explain application of GPS and GIS in Civil Engineering. (04 Marks)

OR

- 10 a. Define photogrammetry. Explain the field of applications of photogrammetry. (10 Marks)
- b. What is toposheet? Explain the importance of toposheet and how it differ from outer resource maps. (10 Marks)
