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Question Paper Code : 40297

B.E./B.Tech. DEGREE EXAMINATIONS, NOVEMBER/DECEMBER 2021.

Third/Fifth Semester

Civil Engineering

CE 8392 — ENGINEERING GEOLOGY

(Common to Environmental Engineering)

(Regulations 2017)

Time : Three hours

Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. Name the erosional agents that lead to the formation of U shaped and V shaped valleys.
2. Differentiate between focus and epicentre of an earthquake.
3. What is cleavage?
4. Write the classification of silicate minerals based on linkage pattern.
5. How are hypabyssal rocks formed?
6. What does an unconformity imply in sedimentary strata?
7. What are the three main types of folds?
8. What are the joints in engineering geology?
9. List the geological considerations involved in road cuttings.
10. Differentiate between dam and reservoir.

PART B — (5 × 13 = 65 marks)

11. (a) Write in detail on the structure and composition of earth. Supplement with neat sketches.

Or

- (b) Give an account of the geological work of wind and briefly write on the geological features produced by erosion and deposition of wind.

12. (a) Write in detail on the physical properties of minerals with suitable examples.

Or

- (b) Enumerate the physical properties and uses of quartz, feldspar and garnet.

13. (a) Write in detail on the texture and structure of igneous rocks and why is the structure and texture of igneous rocks important for civil engineering application?

Or

- (b) Write in detail the nature and engineering significance of the following stones.

(i) Limestone

(ii) Granite.

(6 + 7)

14. (a) With a neat sketch, define a fold and describe its parts. Also, write on the significance of folds for engineering applications.

Or

- (b) Write in detail on the principle of electrical resistivity test explaining the different types of electrode configuration, difference between electrical profiling and sounding and the importance of the method.

15. (a) Explain in detail the structural constraints that should be taken into account in the construction of a dam.

Or

- (b) List the causes of landslides and describe the measures adopted to mitigate landslides.

PART C — (1 × 15 = 15 marks)

16. (a) Structural geology is a critical part of engineering geology that helps to assess the suitability of a site for sensitive and large construction projects like dams, reservoirs and hazard mitigation. With a case study in any of the above listed construction projects' bring out the importance of geological structures like fault, joints and attitude of beds in relevance to the project.

Or

- (b) Knowledge and understanding of geological material are the key to the success of a tunnel project. Discuss the various geological aspects that must be considered for the successful completion of a tunnel project
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