Reg. No. : | | | | | | | | | | | |

R 3026

B.E./B.Tech. DEGREE EXAMINATION, NOVEMBER/DECEMBER 2007.

Third Semester

Civil Engineering

AG 1201 — APPLIED GEOLOGY

(Regulation 2004)

Time : Three hours Maximum : 100 marks

Use neat sketches wherever necessary.

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. What is Exfoliation?

2. Differentiate between water table and perched water table.

3. Write the symmetry elements of normal class of Isometric system.

4. Write the hardness of Calcite and Apatite minerals.

5. What are the diagnostic characteristics of Kaolinite and Illite clay minerals.

6. Describe any two metamorphic rocks.

7. Define the terms Strike, and Dip of rocks.

8. Describe the recumbent fold and overturn fold structures.

9. What is Stand-up time and Pay line in Dam construction?

10. Differentiate between Swelling ground and Running ground in construction site.

PART B — (5 × 16 = 80 marks)

11. (a) Give a detailed account on types of aquifers, factors, formation and occurrence of groundwater. (4 + 4 + 4 + 4)

Or

(b) Describe the Physical and Chemical weathering process. Add a note on weathering grade and its role in engineering projects. (5 + 6 + 3 + 2)

12. (a) Describe the physical and engineering properties of Quartz Group of minerals.

Or

(b) Write the physical properties of Hornblende, Garnet, Biotite mica and Augite. Discuss its role in rock strength analysis. (14 + 2)

13. (a) What are the engineering test to be conducted for rock quality description of foundation rocks and construction aggregates.

Or

(b) Discuss the Rock classification. Give an account on geological and engineering properties of any four Igneous rocks. (4 + 12)

14. (a) What are Fault structures? Give its classification and explain the importance of Fault structure in Dam and Tunnel constructions.

Or

(b) Explain the Wenner and Schlumberger method of geophysical survey. Write its application in site selection, groundwater exploration and bed rock analysis. (5 + 5 + 6)

15. (a) What are Landslides? Discuss the types of landslides and causes of landslides. Give the methods of remedial measures to mitigate the land slides. (2 + 6 + 4 + 4)

Or

(b) Give an account on : (4 + 4 + 4 + 4)

(i) Coastal Protection structures.

(ii) Geological investigations in soft rock tunneling.

(iii) Thematic maps and its Importance in civil engineering projects.

(iv) Geological database in Bridge construction.