

**2022**  
**M.Sc.**  
**Third Semester**  
**CORE – 09**  
**GEOLOGY**  
*Course Code: MGLC 3.11*  
(Engineering Geology & Hydrogeology)

Total Mark: 70

Pass Mark: 28

Time: 3 hours

Answer five questions, taking one from each unit.

**UNIT-I**

1. Define void ratio, moisture content, specific gravity and degree of saturation. Derive an expression to show how they are related in 3-phase system. 8+6=14
2. Write notes on the following: 7×2=14
  - (a) Slake durability index of rock material
  - (b) Uniaxial compressive strength

**UNIT-II**

3. Discuss the impact of civil engineering projects on the environment. 14
4. What are the different parts of a slope? Explain the different types of slopes failures with illustrations. 4+10=14

**UNIT-III**

5. Briefly explain the origin of water. Discuss the different types of sub surface water. 4+10=14
6. Write notes on the following: 7×2=14
  - (a) Unconfined aquifer
  - (b) Hydrological cycle

#### UNIT-IV

7. Explain electrical resistivity method in ground water exploration. 14
8. Write notes on the following: 7×2=14
- (a) Adits and continuous cone penetrometer
  - (b) Photogeology in ground water exploration

#### UNIT-V

9. Explain artificial methods used in recharging groundwater. 14
10. Write notes on the following: 7×2=14
- (a) Consumptive use of water
  - (b) Water contamination
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