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Ex/SC/GEOL/UG/DSE/TH/04/B/2023

**B. SC. GEOLOGICAL SCIENCES EXAMINATION, 2023**

( 3rd Year, 2nd Semester )

**ENVIRONMENTAL GEOLOGY**

**PAPER – CORE/TH/04B**

Time : Two hours

Full Marks : 40

(Use a separate Answer script for each Part)

**PART – I (Marks: 20)**

Answer **any four** questions from the following: 4×5=20

1. What is natural disaster? Discuss the importance of vulnerability of an area to convert a natural hazard into disaster. How are these related to specific risk? 2+3
2. How does 'rock fall' differ from 'rock toppling'? Write the classification flow chart of mass wasting processes based on water content and velocity. 2+3
3. What are the measures of 'degree of saturation' and 'water content' of a moist soil sample? Prove that  $S = \frac{W_C \times G_S}{e}$ , where  $S$  = Degree of saturation,  $W_C$  = Water content,  $e$  = Void ratio,  $G_S$  = Specific gravity of the solid mass of the soil or rock. 2+3
4. A sample of soil has a porosity of 45%. The specific gravity of the solid is 2.65, Calculate (a) Void ratio, (b) Dry density, (c) Unit weight of the soil if soil is 60% saturated and (d) Unit weight of the soil when it is completely saturated. 5

[ Turn over

5. Distinguish in-between (**any two**) : 2.5×2

- a) Eluviation and Illuviation
- b) Liquefaction and Super-saturation of soil
- c) Lahar and Mud flow

**PART – II (Marks: 20)**

Answer question **No. 1** and any **two** from the rest. 2×2=4

1. Write short notes on :
  - a) Biomass
  - b) Bioremediation
2. What do you mean by coastal upwelling and downwelling of sea water? What do you mean by Thermohaline circulation of sea water? What is El Nino? What do you mean by Hadley Cells? 2+2+2+2=8
3. What do you mean by Hazard and Disaster? What do you mean by Vulnerability and Resilency? What do you mean by Biological Oxygen Demand? What impact does it have on aquatic life? 2+2+2+2=8
4. What do you mean by Euryhaline and Stenohaline? What are the existing theories of arsenic release in groundwater? What are the sources of arsenic in alluvium sediments? 3+3+2=8