i) Concept of sustainable development

ii) Factors of global environmental issues.

UNIT-V

9. a) Write an explanatory note on seismic zoning map of India. 7

b) Discuss in detail the human causes of global environmental changes. 7

Or

10. a) Discuss in detail the environmental impact assessment of dam construction. 8

b) Write short notes on the following: 2x3=6

i) Environment Impact assessment processes

ii) Geological hazards.

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PG (CBCS) ODD SEMESTER EXAMINATION, 2022
held in MARCH, 2023

EARTH SCIENCE

3rd Semester

COURSE NO. ESCCC - 303

(Hydrology and Environment Geology)

Full Marks : 70
Pass Marks : 28

Time : 3 hours

The figures in the margin indicate full marks for the questions

Answer any five questions, taking one from each unit

UNIT-I

1. a) Define Zone of aeration. Discuss in detail the controlling factors on porosity of any geologic formation. 1+6=7

b) Discuss hydrological cycle with neat sketch. Write short note on the genetic classification of ground water. 4+3=7

Or

2. a) Define piezometric surface. Discuss the relationship between porosity and void ratio of an unconsolidated clay sample. 1+3=4

(Turn Over)

b) Discuss the control of geological structures on groundwater occurrences. 4

c) Write short notes on the following: 2x3=6

i) Gravitational spring

ii) Leaky aquifer

iii) Hydrologic budget

UNIT-II

3. a) Discuss Darcey's Law of fluid in a porous medium using neat sketch. Add note on its limitation and validity. 3+4=7

b) Write a note on determination of hydraulic conductivity using laboratory methods. 7

Or

4. a) What is hydraulic head? Discuss on different types of potentials of a fluid to characterize hydraulic head of a medium. 1+5=6

b) Write short notes on the following: 2x4=8

i) Cone of depression

ii) Conjunctive and consumptive use of groundwater.

iii) Limitation of Thiem equilibrium method

iv) Importance of artificial groundwater recharge.

UNIT-III

5. a) Discuss in details the occurrence of ground water in limestone terrains with special reference to India. 7

b) Derive the Ghyben- Herzberg equation for fresh and saline water using neat sketches. 7

Or

6. a) Discuss the different types of water well. Add a note on the procedures of well development. 3+3=6

b) Write a detailed account on the different well drilling methods with suitable diagrams. 8

UNIT-IV

7. a) Write a descriptive note on major global environmental problems citing examples. 7

b) Discuss impact of climate change on ecosystems. 7

Or

8. a) Write a descriptive note on conservation and management of natural resources. 8

b) Write short notes on the following: 2x3=6