2023

(May/June)

GEOLOGY

(Honours)

(Remote Sensing and Hydrogeology)

(GELH–601)

Marks : 56

Time : 3 hours

The figures in the margin indicate full marks for the questions

Answer **four** questions, selecting **one** from each Unit

GROUP—A

(Remote Sensing)

UNIT—I

1. *(a)* List the basic elements of aerial photo interpretation. Write brief note on each of them. 3+6=9

(b) Explain the types of sensor. 5

2. Write short notes on any *four* of the following : 3½×4=14

(a) Geotechnical elements

(b) Electromagnetic spectrum

(c) Types of satellite

(d) Components of remote sensing

(e) Platforms

(f) Identification of lineaments from aerial photographs

UNIT—II

3. *(a)* Give an overview of GS. 8

(b) Explain how heights are measured from aerial photographs. 6

4. Write short notes on any *four* of the following : 3½×4=14

(a) Scale of vertical and inclined aerial photographs

(b) Vertical exaggeration

(c) Annotation

(d) GPS

(e) Advantages of aerial photography

(f) Flight lines and overlap

GROUP—B

(Hydrogeology)

UNIT—III

5. *(a)* Distinguish between water table, piezometric surface and perched water table. Outline the features of unconfined and confined aquifers with neat sketches. Which type of aquifer is more common in nature? 3+5+1=9

(b) Explain the cone of depression. 5

6. Write on/Answer any *two* of the following : 7×2=14

(a) Permeability and intrinsic permeability

(b) Vertical distribution of groundwater

(c) Calculate the hydraulic conductivity K of a medium if the hydraulic gradient is 2, through a vertical cross-sectional area of 20 cm^2 with a flow of 100 cm^3 in a time of 600 sec. Specify the nature of the medium. (Take unit of K as cm/sec).

UNIT—IV

7. *(a)* What is overdraft? Mention the two principles of induced groundwater recharge. Explain the stream-channel method of groundwater recharge. 1+2+5=8

(b) Explain any six conditions which will control the site selection for sinking a well. 6

8. Answer any *two* of the following : 7×2=14

(a) Groundwater pollution from municipal sources

(b) Geologic methods for search of groundwater

(c) Interpretation of resistivity survey data for a 2-layer case

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