

Ex./M.Sc./GEOG/102T/70/2019

**MASTER OF SCIENCE EXAMINATION, 2019**

**(1st Year, 1st Semester)**

**GEOGRAPHY**

**Hydrology and Oceanography**

**Paper : - GEOG-102T**

Time : Two hours

Full Marks : 40

Answer any *four* questions choosing *one* from each unit.

**UNIT - I**

1. Discuss the factors that determine the runoff in a drainage basin. How do you identify a geographical area being water surplus or water deficit ? 7+3
2. Discuss the parameters to identify a watershed. Illustrate the different types of aquifer with suitable diagram. 5+5

(Turn over)

( 2 )

### UNIT - II

3. Discuss the skewness and the kurtosis characteristics of hydrographs in explaining the streamflow of river basin. What is overland flow ? Calculate the volume of water discharge in 24 hours at the rate of  $1\text{m}^3/\text{sec}$ . 5+3+2
4. Prove that Darcy's velocity is equal to the product of hydraulic conductivity and hydraulic gradient with the help of a suitable example. Differentiate between porosity and permeability. What is piezometric surface ? 5+3+2

### UNIT - III

5. How does refraction affect a wave ? Describe the formation and propagation of tsunami wave. 2+8
6. Describe the major features of a passive continental margin. State the salient features of active continental margin. 6+4

( 3 )

### UNIT - IV

7. How Oceanic eddies are formed ? Explain subtropical gyres in detail. 4+6
8. How is Ekman transport related to oceanic up-welling and down-welling ? Describe adaptive strategies of deep sea benthic organisms. 6+4

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