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Roll No. : .....

**C020533(020)**

**B. Tech. (Fifth Semester) Examination,**

**Nov.-Dec. 2021**

**AICTE (New Scheme)**

**(Civil Engg. Branch)**

**GROUNDWATER ENGINEERING**

***Time Allowed : Three hours***

***Maximum Marks : 100***

***Minimum Pass Marks : 35***

***Note : Attempt all questions. Part (a) is compulsory & solve any two from (b), (c) & (d) of each questions.***

**Unit-I**

1. (a) Define hydro metrology and scope of hydrology. 4
- (b) Decribe briefly distribution of water on earth. 8

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- (c) Describe hydrologic cycle with a neat sketch. 8
- (d) Describe hydrology and explain component of hydrology. 8

**Unit-II**

2. (a) What is well construction? 4
- (b) Explain management of ground water resources. 8
- (c) Describe in brief the occurrence ground water with neat sketch. 8
- (d) Write short notes on : 8
- (i) Well hydraulics
- (ii) Geo-physical exploration

**Unit-III**

3. (a) What is Aquifer? 4
- (b) Explain steady and unsteady radial flows in aquifers. 8
- (c) Write short notes on : 8
- (i) Specific capacity
- (ii) Partially penetrating wells

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- (d) Explain multiple well systems and also explain characteristics of well losses. 8

**Unit-IV**

4. (a) Explain surface and sub-surface investigation. 4
- (b) Explain geologic method of surface investigation. 8
- (c) Write short notes on : 8
- (i) Seismic refraction
- (ii) Electrical resistivity
- (d) Describe remote sensing and geophysical exploration. 8

**Unit-V**

5. (a) What is Water Wells? 4
- (b) Describe protection and rehabilitation of wells. And also explain groundwater quality. 8
- (c) (d) Write short notes on : 8
- (i) Basin management
- (ii) Groundwater management
- (d) What is modeling and explain artificial recharge? 8

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