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ET-532(B)

**B. TECH. CIVIL (WATER RESOURCES
ENGINEERING) (BTWRE)****Term-End Examination****June, 2019****ET-532(B) : GROUNDWATER DEVELOPMENT***Time : 3 Hours**Maximum Marks : 70*

Note : Attempt any five questions. All questions carry equal marks. Diagrams/sketches should be neat and well labelled.

1. (a) Explain porosity, specific yield and specific retention with neat diagram. 7
- (b) Describe Engineering problems associated with groundwater development. 7
2. (a) Explain Theis's method of estimation of groundwater flow. 7
- (b) What do you understand by Interference of wells? 7

3. (a) How are different landforms interpreted on the basis of Aerial photographs ? 7
- (b) Explain Seismic Refraction method with neat sketch. 7
4. (a) What and how investigations can be done on the basis of toposheets ? Explain them. 7
- (b) What are different types of wells ? Explain any *one* of them with neat sketch. 7
5. (a) What are methods of well construction ? Explain Rotary drilling with neat sketch. 7
- (b) Enlist the man-made factors which govern the composition of ground water. Explain them. 7
6. (a) Explain energy budget method in detail to determine evaporation. 7
- (b) Describe inflow conditions in a dug well after rainy and winter season. Give neat sketches. 7
7. (a) What do you understand by sprinkler and drip irrigation ? List advantages and disadvantages of both of them. 7
- (b) Describe the principle of a sub-surface dam. How is a sub-surface dam constructed ? 7

8. Write short notes on any *four* of the following :

$$4 \times 3 \frac{1}{2} = 14$$

- (i) Isohytal method
- (ii) Infiltration
- (iii) Total hardness
- (iv) Flow nets
- (v) Land subsidence