

Subject Code:2161307

Date:08/05/2018

Subject Name:Ground Water Contamination

Time:10:30 AM to 01:00 PM

Total Marks: 70

Instructions:

1. Attempt all questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.

- Q.1** (a) Write down the hydrological properties of water bearing strata. 03
(b) Describe the occurrences of ground water in unconfined & confined aquifer with neat sketch. 04
(c) What is ground water? Discuss vertical distribution of ground water with neat Sketch. 07
- Q.2** (a) Write the assumptions made in dupuit's theory. 03
(b) Explain the Darcy's law. What are its limitations? Discuss its validity. 04
(c) Derive the equation for steady radial flow to well in unconfined aquifer. 07
- OR**
- (c) Derive the equation for steady radial flow to well in confined aquifer. 07
- Q.3** (a) Explain the pumping test to estimate the safe yield from an open well. 03
(b) Distinguish between 04
(1) Aquifer & Aquitard.
(2) Unconfined aquifer & a leaky aquifer
(c) Explain in detail different sources responsible for ground water pollution with causes. 07
- OR**
- Q.3** (a) Difference between fully and partial penetrating wells. 03
(b) Explain the following terms: (1) Porosity (2) Permeability (3) Transmissibility (4) Specific yield 04
(c) Enlist and explain ground water remediation methods. 07
- Q.4** (a) What is cone of depression? 03
(b) Explain site selection criteria for artificial recharge. 04
(c) What is artificial recharge? Explain different artificial recharge methods of ground water. 07
- OR**
- Q.4** (a) Explain in detail method of images. 03
(b) Explain in detail how to monitor groundwater quality 04
(c) Write down the ground water quality criteria for drinking water. 07
- Q.5** (a) Discuss in detail ground water budget. 03
(b) Explain induced recharge method with their flow pattern. 04
(c) Explain in detail ground water in hydrological cycle with neat sketch 07
- OR**
- Q.5** (a) Explain in detail interference among wells. 03
(b) Explain Artificial recharge for "energy purpose". 04
(c) Write down the Indian & International standards for ground water quality 07