

FACULTY OF ENGINEERING

B.E. (III/IV Year) (Civil) II Semester (Main) Examination, June 2010

WATER AND WASTE WATER ENGINEERING

Time : 3 Hours]

[Max. Marks : 75

*Answer all questions from Part A.
Answer any five Questions from Part B.*

Part A – (Marks : 25)

1. List out the objectives of Protected Water Supply Schemes.
2. The quality of treated water from slow sand fitter is superior compared to that of a rapid sand fitter. Do you agree? Give your reasoning.
3. What are the permissible and excessive permissible limits in drinking water of: Total hardness, Alkalinity and Turbidity.
4. What are the various shapes adopted for sewer sections? Why those shapes are adopted?
5. A Sewage sample has 5 day 20 C BOD of 180 mg/lit, what will be its 5 day 30 C BOD.
6. Differentiate between BOD and COD.
7. Briefly explain the various methods of disposal of sludge.
8. With the aid of neat sketch, briefly explain the working of a trickling filter.
9. What is meant by disinfection of water? Mention the various methods of disinfection.
10. Compute velocity of flow through a circular pipe 20cm diameter running full level at 1 in 400 slope.

Part B – (Marks : 50)

11. (a) Mention the factors affecting the Percapita consumption of water. (3)
- (b) Compare the quality and quantity aspects of ground and surface water sources. (3)
- (c) Explain briefly about Hardy–cross method in finding out the distribution of flow in pipe network. (4)

12. (a) Design slow sand fitters for a small village having a population of 35,000. The percapita demand is 85lpcd. (7)
- (b) How do you determine optimum dosage of coagulant. (3)
13. (a) Define BOD and COD, give the equation for BOD. Mention the effect of temperature on BOD equation and rate constant K. (6)
- (b) Discuss about the estimation of storm water by Rational method. (4)
14. (a) With a flow diagram, explain about the activated sludge process. (5)
- (b) Design a grit chamber to handle a flow of 1.2 MLD, sketch your design. (5)
15. (a) Design a septic tank for a hostel having 350 inmates provided with a water supply of 90 lpcd. Sketch your design. (6)
- (b) Discuss about the Sludge digestion process. (4)
16. (a) Give the Schematic diagram indicating the sequence of treatment units as they appear in a water treatment plant, when surface water is the source. List the objectives of each unit. (7)
- (b) What do you mean by Low cost waste treatment. (3)
17. (a) Write a note on the construction and maintenance of sewers bringing out the salient features like materials used, shapes and gradients adopted generally, testing. (6)
- (b) Describe the standards of Potable water. (4)
-