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Total Number of Pages : 01

**B.Tech
PCCI4402**

**7th Semester Back Examination 2019-20
WATER SUPPLY AND SANITARY ENGINEERING
BRANCH : CIVIL
Time : 3 Hours
Max Marks : 70
Q.CODE : HB440**

**Answer Question No.1 which is compulsory and any FIVE from the rest.
The figures in the right hand margin indicate marks.**

- Q1 Answer the following questions : (2 x 10)**
- a) What do you mean by Specific yield and Specific retention? Write the relation between them w. r. t. Porosity.
 - b) Explain Perched Aquifer with a neat sketch.
 - c) Write the relationship between BOD and COD. Also write its significance?
 - d) What are coagulants? Name four most popular coagulant used in w/w treatment?
 - e) Compute pH of sample of 0.4×10^{-3} M H_2SO_4 solution?
 - f) What are pathogens? Write the name of two water borne diseases common to man
 - g) State the significance of over flow rate in sedimentation tank design?
 - h) What is sludge volume index and Its importance in wastewater treatment?
 - i) State various mechanism involve during filtration?
 - j) What do you mean by Sewage Sickness?
- Q2 a) Explain the factors that govern the choice of particular type of Pump in water supply engineering? (5)**
- b) Differentiate between rapid sand filter and slow sand filter? (5)**
- Q3 a) What is break point chlorination? Illustrate the advantage and disadvantage of use of chlorine as disinfectant? (5)**
- b) Name some Heavy metal present in wastewater and its effect on human and other living organism? (5)**
- Q4 a) The sewage of the town is to be discharged in to a river stream. The quantity of sewage produced per day is 8 MLD and its BOD 250mg/L. If the discharge in the river of flow 600L/s and BOD 6mg/L. Calculate the BOD of diluted water? (5)**
- b) Discuss with a schematic diagram the design concepts of a horizontal flow sedimentation tank. What is its advantage over a vertical up flow sedimentation tank? (5)**
- Q5 a) Analyse the effect of pH and temperature on sludge digestion. (5)**
- b) Explain about the systems of sewerage. (5)**
- Q6 What are the requirements of a good distribution system? Discuss with neat sketches the various types of layout of distribution systems. (10)**
- Q7 Mention any three methods of Softening of water. Describe "Zeolite and Demineralisation process of softening water in detail. (10)**
- Q8 Write short Notes on any TWO : (5 x 2)**
- a) Operational Troubles in Rapid Gravity Filter
 - b) Oxidation pond and oxidation ditch.
 - c) Cavity formation in wells