(6) T.E - Sem - VI - old - Civil

EE - I

8/12/15

QP Code : 1995

(OLD COURSE)

(3 Hours) **[Total Marks : 80**

(1) Question No.1 is compulsory

SET 1

(2) Attempt any Three questions out of Five questions

(3) Assume suitable data wherever necessary

Q1. Answer any Four. 20 M

1. What is the necessity of Water supply schemes in the present day community?
2. What is water hammer, precautions and arrangements made to reduce its effects.
3. Write effects of disposal of hazardous material on environment.
4. Classify MSW
5. What factors will you consider while designing plumbing system for water supply to a house?

Q2. 1. The following are the data given of a change in diameter effected in laying a water supply pipeline. The change in diameter is gradual from 20cm at A to 50cm atB. Pressures at A nad B are 0.8 kg/cm2 and 0.6 kg/cm2, respectively with the end B being 3 meters higher than A. If the flow in pipeline is 200 lit/sec find (i) direction of flow and (ii) The head lost in friction between A and B. 10 M

2. What is meant by design periods and Population forecasts? Why is it necessary in the design of public water supply schemes? What are the different methods to forecast population. 10 M

Q3. 1. Explain systems and methods of distribution system and its advantages , disadvantages . 8M

2.The water level of a reservoir is at 50 m. Water is drawn from it through a gravity main of 1.0 km, the elevation of distribution area is 10m. It is desirable to have a maximum residual pressure of 12m in the distribution system. Find the required diameter of the gravity main to serve a population of 1 Lakh at per capita rate of 200 l/d. Assume f=0.005. 6 M

3. Write valves used in distribution system and its functions 6 M

Q4. 1. Design a plain sedimentation tank (rectangular) to treat 2 MLD with 2 h detention period and overflow rate less than 50000 litres per day per unit surface area. If the water contains 600 mg/l of suspended solids, 33 % of which are settleable, calculate the volume for sludge storage for 30 days cleaning period. 10 M

2. Draw a flow diagram of water treatment plant for a medium sized town and explain the functions of each unit. 10 M

Q5. 1.The population of a town is 1,00,000 and the average percapita demand is 135lit/day/capita. Design a coagulation cum sedimentation tank for the water works, supplying water to the town. The maximum demand may be taken as 1.5 times the average demand. Assume the detention periods of 5 hours and 30 minutes for settling tank and floc chamber respectively. Also assume the flow rate as 900lit/hour/m2 of plan area. 10M

2. Prove that theoretically the surface loading Q/A and not the depth is a measure of effective removal of particles in a sedimentation tank. 5 M

3. Write different methods of disinfection 5M

Q6. 1. Explain the different process involved in Solid waste management 08 M

2. Design a rapid sand filter unit for treating 5 MLD for a town. The filter are to work day and night. Take 4500 lit/m2/hour as the rate of filtration. 06 M

3. Compare rapid sand filter and Slow sand filter 06 M

Course: T.E. (SEM.-VI) (REV. -2007) (CIVIL ENGG) (PROG-T2616)

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Correction:

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1. **Question no.1** is compulsory

2. Answer any **FOUR** questions from Remaining **FIVE** questions.

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08/12/15

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