

**Assignment-1                      Water Supply scheme/System**

1.	What is the necessity of water supply schemes? Enlist phases involved in water supply scheme.
2.	Explain different factors affecting water demand.
3.	What is design period? What are the factors affecting design period.
4.	Discuss factors affecting selection of site for water treatment plant.
5.	Give the classification of intake. Explain construction and working of a River intake, Dry Intake, Wet intake, Canal Intake, Submerge Intake with Sketch.
6.	Describe the site selection criteria for selecting the site of intake structure.
7.	What are the different types of pipes used for water supply? Explain CI pipes, WI pipes, Steel pipes, Concrete pipes
8.	Explain dead end system of water distribution network with its merits and demerits
9.	Write short note on Coagulation.
10.	What do you mean by Optimum dose of a coagulant? How optimum coagulant dose is determined?
11.	Write objectives of aeration and disinfection process in water treatment plant.
12.	Elaborate the process of Aeration in water supply scheme.
13.	Elaborate the process of Sedimentation before supplying the water.
14.	What is sedimentation with coagulation process? Derive the equation for settling velocity in sedimentation tank.
15.	Design a rectangular sedimentation tank of a water treatment plant for a town having population of 100000. Overflow rate= 25m/day, depth of tank =3.2m

**Assignment-2                      Sewage : Characteristics, Treatment and Disposal**

1.	Draw a typical flow sheet of a municipal wastewater treatment plant and explain the functions of each Unit operations.
2.	Explain break point chlorination.
3.	Explain the need of low-cost sanitation system. Explain (I) Septic tank, (II) Soak pit
4.	Differentiate between trickling filter and activated sludge unit.
5.	Explain in brief various methods of sewage disposal as per Indian standard.
6.	Differentiate between attached growth process and suspended growth process.
7.	An average operating data for conventional activated sludge treatment plant is as follows: (1) Waste water flow = 30,000 m <sup>3</sup> /d (2) Volume of aeration tank = 10,000 m <sup>3</sup> (3) Influent BOD = 250 mg/l

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	<p>(4) Effluent BOD = 20 mg/l  (5) MLSS = 2500 mg/l  (6) Effluent SS = 30 mg/l  (7) Waste sludge SS = 9000 mg/l  (8) Quantity of waste sludge = 200 m<sup>3</sup>/d</p> <p>Based on above data determine:  (1) Aeration period  (2) F/M ratio  (3) BOD removal efficiency in percentage  (4) Sludge age, days</p>
8.	<p>Design a conventional activated sludge plant to treat settled domestic sewage with diffused air aeration system with the following data:  Population = 1,50,000  Average sewage flow = 150 lpcd  Settled sewage BOD<sub>5</sub> = 200mg/l  Effluent BOD<sub>5</sub> required = 10mg/l</p>

**Assignment – 3                      Collection of sewage**

1.	Write short note on R.C.C sewers.
2.	Enlist sewer appurtenances. Sketch and discuss Manhole, Drop manhole and Lamp hole as sewer appurtenances.
3.	Design a sewer to serve a population of 50000 with a water supply of 135lpcd. The slope available for the sewer to be laid is 1 in 625 and the sewer to should be designed to carry four times the dry weather flow when running full. What would be the velocity of flow in the sewer when running full?

**Assignment – 4                      House Drainage**

1.	Define the following terms: (a) Wastewater (b) Sewage (c) Sullage (d) Sewer (d)Soil pipe (e) waste pipe (f)Sewarage system (g) Traps
2.	Draw neat sketch and describe the following traps (i) Nahni trap (ii) Gully trap (iii) Intercepting trap (iv) Traps depending upon shapes.
3.	Describe the single pipe system and two pipe system of plumbing with sketches.
4.	Describe principles of house drainage system with one typical House drainage plan.
5.	State the different components of house drainage system and describe Pipes and Sanitary fittings.

**Assignment – 5                      Solid Waste Management**

1.	Explain composition and characteristics of different types of solid wastes.
2.	Discuss Factors affecting the solid waste generation rate.
3.	Briefly explain Onsite handling, storage and processing of domestic solid waste.
4.	Give your opinion on how biohazard waste should be collected and disposed?
5.	Explain types of municipal solid waste collection, treatment and disposal processes.

**Assignment – 6                      Air Pollution, Noise Pollution**

1.	Define air pollution. Explain Indian Ambient air quality standards.
2.	Describe different sources of air pollution.
3.	Describe different air pollutants and their effects on Human and animals.
4.	Describe the devices used for control of air pollution.
5.	What is noise pollution? How is it measured? Describe some effects their control measures required to control noise pollution.
6.	Which are the common sources of noise pollution.
7.	Give the standards of acceptable noise level in different zones as per the IS standards.
8.	State the effects of noise pollution and different control measures for noise pollution.

**Assignment-7                      Environment Impact Assessment (EIA) & The Environmental Acts**

1.	Write short note on (i) Environmental Audit, (ii) Environmental Impact Assessment (EIA), (iii) Role of EIA in sustainable development
2.	What are the steps taken for prevent and control Environmental Pollution, Under EPA, 1986?
3.	What are the functions of state board under Air act, 1981?
4.	State salient features of The Water (prevention and control of pollution) Act-1974.