



**INSTITUTE OF AERONAUTICAL ENGINEERING**  
(AUTONOMOUS)

Dundigal, Hyderabad - 500 043

**CIVIL ENGINEERING**  
**ASSIGNMENT QUESTIONS**

<b>Course Name</b>	:	<b>ENVIRONMENTAL ENGINEERING</b>
<b>Course Code</b>	:	A60119
<b>Class</b>	:	III - B. Tech II SEM
<b>Branch</b>	:	Civil Engineering
<b>Year</b>	:	2017 – 2018
<b>Course Coordinator</b>	:	Mr. Srinivas Angadi , Assistant Professor
<b>Course Faculty</b>	:	Mr. Srinivas Angadi, Assistant Professor Mr. G Anil Kumar, Assistant Professor

**COURSE OBJECTIVES:**

- I. Forecast the population for designing of distribution system.
- II. Calculate the sufficient quantity of water for fire fighting in a town
- III. Design and analysis of distribution system and appurtenances in distribution system
- IV. Design skimming tank, grit chambers, sedimentation tank and trickling filters.
- V. Design sludge digestion tank, oxidation pond and working principles of septic tanks.

S. No	Question	Blooms Taxonomy Level	Course Outcome
<b>UNIT-I</b> <b>INTRODUCTION</b>			
1.	Write short note on the maintenance of purity of waters?	Remember	1
2	Write short note on, (a) MPN (b) Sampling of water?	Understand	1
3	Describe the different microorganisms commonly found in water?	Understand	1
4	Explain “Fluctuation in water demand”?	Remember	2
5	Write a note on drinking water quality standards in India?	Understand	2
6	Write an account on the common water-borne diseases?	Remember	2
7	Classify the sources of water. On which factor the quantity and reliability of water depends.	Remember	2
8	Explain the function of Intakes. What factors are responsible for site selection of intake	Understand	3
9	Explain the meaning of yield of a well and mention the factors on which it depends.	Understand	3
10	What are infiltration galleries and infiltration wells? Explain with the help of neat sketches?	Remember	3
<b>UNIT-II</b> <b>LAYOUT AND GENERAL OUTLINE OF WATER TREATMENT UNITS</b>			
1	Discuss in detail the usual coagulants which are employed for the treatment of water?	Understand	4

S. No	Question	Blooms Taxonomy Level	Course Outcome
2	Explain various types of sedimentation tanks based on shapes with neat sketches?	Understand	4
3	Explain the aspects which influence design and performance of sedimentation tanks?	Understand	4
4	Explain the principle of sedimentation and derive the equation for uniform setting velocity in terms of specific gravity of a particle?	Remember	4
5	What are the feature of fill and draw settling tanks.	Understand	5
6	Explain in detail alum or Aluminum Sulphate and sodium aluminate	Understand	5
7	Mention the chemical reactions when sodium aluminate and ferrous sulphate and lime are used as coagulants.	Understand	5
8	write the determinations of optimum dose of coagulant by jar-test Apparatus	Remember	5
9	Draw a neat sketch of conical plug solution feeding device.	Understand	5
10	What is conical plug solution feeding Device	Understand	5
<b>UNIT-III FILTRATION</b>			
1	What do you understand by filtration? Explain theory of filtration?	Understand	6
2	Discuss any four methods of disinfection of water?	Remember	6
3	Design a rapid sand filter unit for 4.5 MLD with all its principal components?	Understand	6
4	What do you understand by filtration? Explain theory of filtration?	Remember	6
5	Discuss slow sand filters and explain	Understand	6
<b>ASSIGNMENT II</b>			
6	Discuss any four methods of disinfection of water?	Remember	7
7	What is a service reservoir? Given its importance in a distribution system? Draw a neat diagram of an elevate tank and show all its component ports and appurtenances?	Understand	7
8	Draw a neat diagram of elevated tank and show all its component ports and appurtenances	Understand	7
9	Write a Hazen William's formula for flow of water through pipe.	Remember	7
10	What is the different appurtenance used in a distributed system? Explain?	Remember	7
<b>UNIT-IV CONSERVANCY AND WATER CARRIAGE SYSTEM OF SEWAGE AND STORM</b>			
1	What is the foundation of storm water regulator in sewerage systems? Draw a neat sketch of "leaping weir storm regulator"?	Understand	8
2	(a) Explain BOD and derive the expression for it? (b) Explain COD and derive the expression for it?	Understand	8
3	Draw a neat diagram of circular pipes Sewer Section and Explain.	Remember	8
4	Explain the classification of traps?	Remember	8
5	What are the different parameters that are considered in the Sewer design?	Understand	8
6	What are the different sewers sections explain with neat diagrams?	Understand	8
7	Explain the following with neat sketches, (a) Manholes (b) Inverted siphon (c) Catch Basin?	Understand	9
8	Write short notes on the various materials used in sewer construction?	Understand	9
9	Distinguish between the loss of head and negative head?	Remember	9

S. No	Question	Blooms Taxonomy Level	Course Outcome
10	Draw a typical house drainage plan of a residential building?	Understand	9
<b>UNIT-V</b>			
<b>WATER TREATMENT PLANT</b>			
1	Write an account an effluent treatment?	Understand	10
2	Write an account on floating surface Aerator	Understand	10
3	Design a horizontal flow type grit chamber for a proposed sewage treatment plant expected to treat 60,000 m <sup>3</sup> /day respectively. The flow through velocity is to be controlled by a proportional weir?	Understand	10
4	Explain the operational problems of trickling filter and their remedies?	Understand	10
5	Write down the summary of reactions during Anaerobic Treatment	Remember	10
6	List out the methods for removal of dissolved inorganic impurities from waste water.	Remember	11
7	Explain the activated sludge process with a flow diagram	Understand	11
8	Explain the operational problems of trickling filter and their remedies.	Understand	11
9	Give the advantages and disadvantages of ASP	Understand	12
10	Discuss how the symbolic relationship between algae and bacteria is useful in the treatment of sewage in an oxidation pond.	Understand	12

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