MARRI LAXMAN REDDY
INSTITUTE OF TECHNOLOGY AND MANAGEMENT
(AN AUTONOMOUS INSTITUTION)
(Approved by AICTE, New Delhi & Affiliated to JNTUH, Hyderabad)
Accredited by NBA and NAAC with 'A' Grade & Recognized Under Section2(f) & 12(B)of the UGC act,1956

III B.Tech II Sem Supply End Examination, January 2023
Environmental Engineering
(Civil Engineering)

Time: 3 Hours.   **Max. Marks: 70**

Note: 1. Question paper consists: Part-A and Part-B.
2. In Part – A, answer all questions which carries 20 marks.
3. In Part – B, answer any one question from each unit.
   Each question carries 10 marks and may have a, b as sub questions.

PART- A
(10*2 Marks = 20 Marks)

1.	a)	Write a note on types of water demands.	2M	CO1	BL2
	b)	What is protected water supply? Explain.	2M	CO1	BL5
	c)	Briefly discuss the theory of filtration.	2M	CO2	BL2
	d)	Explain about design period. What is the design period for storage reservoirs?	2M	CO2	BL5
	e)	How do you quantify sewage?	2M	CO3	BL4
	f)	Discuss one pipe and two pipe systems of plumbing.	2M	CO3	BL2
	g)	What is meant by grit chambers?	2M	CO4	BL2
	h)	Write briefly about sewage farming.	2M	CO4	BL1
	i)	Distinguish between primary and secondary air pollutants.	2M	CO5	BL4
	j)	Write a note on Electrostatic Precipitators.	2M	CO5	BL2

PART- B
(10*5 Marks = 50 Marks)

2	a)	What are the sources of water? Write about quality and quantity of water sources.	5M	CO1	BL2
	b)	Write about water borne diseases.	5M	CO1	BL1

OR

3	Explain in detail about intakes and infiltration galleries with neat sketches.	10M	CO1	BL4

4	a)	Discuss in detail about the principal and working of a slow sand filter and rapid sand filter.	5M	CO2	BL3
	b)	Describe equivalent pipe method in detail.	5M	CO2	BL2

OR

5	Discuss different types of layouts of water distribution system with neat sketches.	10M	CO2	BL5

6	a)	Mention the various aspects you would keep in view when designing a sewer.	5M	CO3	BL5
	b)	A 30 cm diameter sewer an invert slope of 1 in 400 is flowing 1/3rd of the full depth. Calculate the velocity and the rate of flow in the sewer. Is it self-cleaning velocity? Use n=0.015.	5M	CO3	BL3

<div align="center">**OR**</div>

7	Discuss in detail sewer appurtenances along with the purpose for which they are used.	10M	CO3	BL5

8	a)	Discuss the relationship between algae and bacteria during the treatment of sewage in an oxidation pond.	5M	CO4	BL2
	b)	A sedimentation tank treats 10 Mld containing 240 mg/l of suspended solids. The tank removes 55% of the suspended solids. Compute the weight and volume of the sludge produced yearly if the moisture content is (i) 96% (ii) 94%.	5M	CO4	BL4

<div align="center">**OR**</div>

9	What do you understand by 'digestion of sludge"? Differentiate between anaerobic and 'aerobic digestion'. Explain the mechanism of anaerobic digestion.	10M	CO4	BL4

10	a)	What is smog? Discuss its causes.	5M	CO5	BL2
	b)	What do you understand by 'plume rise'? Explain.	5M	CO5	BL4

<div align="center">**OR**</div>

11	Write a detail note on effects of air pollution and what measures need to be taken to control it effectively.	10M	CO5	BL5

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