

THE KAVERY ENGINEERING COLLEGE
(An Autonomous Institution)

M.E DEGREE END SEMESTER THEORY EXAMINATIONS, NOV /DEC 2024

First Semester

Environmental Engineering

PEVT2404 / EV4104 – Water Transmission, Water Distribution and Sewerage Systems

Regulations – 2021 & 2024

Duration : 3 Hrs

Maximum : 100 Marks

PART – A (ANSWER ALL QUESTIONS) (Marks 10*2=20)

<i>Q.No</i>	<i>Questions</i>	<i>BLT</i>	<i>CO</i>	<i>Marks</i>
1.	Write any two properties of fluid.	RE	1	2
2.	Outline the necessity of transport of water and wastewater.	UN	1	2
3.	State the objectives of planning of water supply system.	UN	2	2
4.	How to avoid water hammer effect?	RE	2	2
5.	Define optimization.	RE	3	2
6.	Mention the necessity of plumbing for water supply system in high rise buildings.	UN	3	2
7.	List the types of sewer appurtenances.	RE	4	2
8.	Classify the problems faced during conveyance of corrosive waste water.	UN	4	2
9.	What is meant by separate system?	RE	5	2
10.	Give the relationship between intensity, duration and frequency of rainfall.	UN	5	2

PART – B (ANSWER ALL QUESTIONS) (Marks 5*13 = 65)

<i>Q.No</i>	<i>Questions</i>	<i>BLT</i>	<i>CO</i>	<i>Marks</i>
11.	a i Illustrate the continuity equation for one dimensional flow.	UN	1	8
	ii How to compute frictional losses in free and pressure flow conditions?	UN	1	5
	Or			
	b Classify any two methods of flow measurement with neat sketches.	UN	1	13
12.	a i Describe the components in water transmission main design and distribution.	UN	2	9
	ii List the various factors involved in the selection of pump.	UN	2	4
	Or			
	b Summarize the procedure for laying, jointing and maintenance of water transmission line.	UN	2	13
13.	a Discuss the steps to be followed for the design of water distribution pipe network.	AP	3	13

Or

	b	i	Outline the various pipe appurtenances used in water distribution system.	UN	3	5
		ii	Enumerate the different methods for detection of leaks in water distribution system.	UN	3	8
14.	a	i	Explain the sanitary sewers designed for partial flow?	AP	4	5
		ii	Elaborate the different methods of construction, inspection and maintenance of sewer system.	AP	4	8
			Or			
	b		Design an outfall sewer in the separate system for a town with a population of 1,00,000 with water supply of 150 lpcd. The sewer is to be of brick work rendered smooth with cement mortar, $N=0.013$. The permissible slope is 1 in 800. A self-cleansing velocity of 0.75 m/s is to be developed. Assume relevant data.	AP	4	13
15.	a	i	Compare the merits and demerits of combined system of sewerage.	AN	5	6
		ii	Analyze the various methods used for estimation of storm runoff.	AN	5	7
			Or			
	b	i	List the various factors affecting the storm water runoff.	AN	5	5
		ii	If the catchment served by a sewerage system is 40 hectares and the duration of the storm is 18 minutes. What is the runoff from the catchment by the rational method Take impermeability coefficient as 0.4.	AN	5	8

*PART – C (Marks 1*15 = 15)*

<i>Q.No</i>		<i>Questions</i>	<i>BLT</i>	<i>CO</i>	<i>Marks</i>
16.	a	Identify the applications of EPANET and BRANCH software used in design of water transmission and distribution system.	AP	3	15
		Or			
	b	Distinguish between SewerCAD and SewerGEMS software used in sewer design.	AP	5	15