Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER– IV(NEW) EXAMINATION – SUMMER 2023

Subject Code:3141312 Date:19-07-2023

Subject Name:Municipal Engineering

Time:10:30 AM TO 01:00 PM Total Marks:70

Instructions:

1. **Attempt all questions.**
2. **Make suitable assumptions wherever necessary.**
3. **Figures to the right indicate full marks.**
4. **Simple and non-programmable scientific calculators are allowed.**

			Marks
Q.1	**(a)**	What is the importance of Water supply scheme?	**03**
	(b)	Define the following terms: [i] Porosity [ii] Water Bearing stratum [iii] Aquifer [iv] Permeability	**04**
	(c)	Give the classification of sources of water. Explain each source in brief.	**07**
Q.2	**(a)**	Write a short note on ideal population growth curve.	**03**
	(b)	Differentiate between Gravity system & Pressurized system of water supply.	**04**
	(c)	A town having a population of 60,000 is supplied with a per capita water supply of 180 litres per day. A separate sewer from this town enters a pumping station through a low level sewer at R.L. 120.00 m. This sewage is to be pumped to a high level sewer at R.L. 129.00 m. Assuming that 80% of water reaches the sewer, determine a) size of sump well, b) BHP of pump motor required and c) size of rising main, if the length is 120 m. (Peak flow =3 times the average flow, Velocity of flow in rising mains = 1 m/s, Min. time of pumps running continuously = 15 min, Head losses in bends = 0.4 m, Efficiency of pump =65% and Efficiency of Driving Unit = 75%)	**07**
		OR	
	(c)	What are the factors on which location of intake works depend? Draw a neat sketch of river intake and explain its working.	**07**
Q.3	**(a)**	Write a short note on “Traps”.	**03**
	(b)	Draw neat sketches and describe the following joints: (i) Expansion joint & (ii) Flanged joint	**04**
	(c)	Under what circumstances pumps are required? What are the main classifications of pumps?	**07**
		OR	
Q.3	**(a)**	Draw a diagram of Dead end system.	**03**
	(b)	Prepare a list of different types of valves used in water supply and explain any two in brief with neat sketch.	**04**
	(c)	Enlist the distribution systems and explain anyone with a neat sketch, enlisting its merits and demerits.	**07**
Q.4	**(a)**	What should be the characteristics of materials to be used for sewer construction?	**03**
	(b)	Enlist various systems used in House Plumbing. Explain any one in detail.	**04**

	(c)	What are the aims and objectives of sewage disposal? Explain in detail.	**07**
		OR	
Q.4	**(a)**	Explain the hydrostatic test for laying of new sewer pipelines.	**03**
	(b)	Enlist different types of Materials for Sewers. Explain any two in detail.	**04**
	(c)	How does the sewage flow vary from hour to hour, day to day and season to season in what way does this affect the design of sewage system?	**07**
Q.5	**(a)**	Draw a neat flow diagram of water supply scheme..	**03**
	(b)	What factors affect the quantity of storm water flow?	**04**
	(c)	What are the factors on which location of intake works depend? Draw a neat sketch of Reservoir intake and explain its working.	**07**
		OR	
Q.5	**(a)**	What is coefficient of runoff?	**03**
	(b)	Define the terms: (i) Self-cleaning velocity (ii) Non scouring velocity (iii) Invert (iv) Sullage	**04**
	(c)	Enlist and explain factors affecting water demand.	**07**