GUJARAT TECHNOLOGICAL UNIVERSITY
BE - SEMESTER–V(NEW) EXAMINATION – SUMMER 2022

Subject Code:3150616 **Date:13/06/2022**

Subject Name:Pipeline Engineering

Time:02:30 PM TO 05:00 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.

Q.1	**(A)**	Define: (i) Peak factor (ii) Sluice valve (iii) Reflux valve	**[03]**
	(B)	Mention Different types of pumps used in water supply and discuss any one	**[04]**
	(C)	Discuss requirement of good distribution system Describe the layout of various water distribution network.	**[07]**
Q.2	**(A)**	Explain Gravity cum pumping system with diagram.	**[03]**
	(B)	Discuss advantage and disadvantages of Intermittent water supply system.	**[04]**
	(C)	A city with population of 1 million has continuous water supply. The average demand of a town is 270 LPCD. The water is supplied to the city by direct pumping. The total supply of 270 LPCD is phased as follows	**[07]**

Time	LPC
5 am to 11 am	80
11 am to 3 pm	50
3 pm to 9 pm	80
9 pm to 12 midnight	25
12 midnight to 5 am	35

Water is supplied from water treatment plant at uniform rate for all 24 hours .Find out capacity of reservoir for distribution of water. Assume no loss and water withdraw from mains.

OR

	(C)	A city having 1.5 lakh populations is to be supplied water at 100 LCPD from a source to 1 km away town. The town is situated at higher elevation of 25 m from the level of water in the source .If the demand has to be supplied in 8 hours, determine the size of the rising main and BHP of the pumps required. Assume maximum demand as 1.5 times the average demand .The value of C H =110. Consider velocity as 2 m/s. Take efficiency of pump is 80%.	**[07]**
Q.3	**(A)**	Why rehabilitation of pipeline is required?	**[03]**
	(B)	Write short note on leak detection system.	**[04]**
	(C)	What do understand by water audit also differentiate between real losses and apparent loss in water supply system	**[07]**

OR

Q.3	**(A)**	Define: Air relief valve and Cut off valve.	**[03]**
	(B)	Discuss importance of surge tank in water supply.	**[04]**
	(C)	What is water hammer explain causes and effect of water hammer.	**[07]**
Q.4	**(A)**	Discuss importance of water meter in water supply.	**[03]**
	(B)	Explain minimum night flow analysis.	**[04]**
	(C)	What do you understand by corrosion in pipes what are the reasons of corrosion and write remedial measures?	**[07]**

Q.4 **(A)** Discuss importance of district metered area. **[03]**

(B) Enlist different internal and external coating used in pipe line and explain **[04]**
one in detail.

(C) Write short note on following **[07]**
Cast iron pipe , Concrete pipe and Plastic pipes

Q.5 **(A)** Discuss the function of thrust block for water supply mains. **[03]**

(B) Explain procedure of hydrostatic test in pipeline testing. **[04]**

(C) Enlist types of joints in pipeline and explain any two in detail. **[07]**

OR

Q.5 **(A)** Explain the procedure of lowering laying and jointing of pipeline. **[03]**

(B) Enlist different types of welding and explain any one in detail. **[04]**

(C) Explain spigot and socket joint and flanged joint. **[07]**

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