G . 3.T	T 1 . 37
Seat No.:	Enrolment No.
scat No	Linoinent No.

GUJARAT TECHNOLOGICAL UNIVERSITY

B. E. - SEMESTER - VI • EXAMINATION - WINTER 2012

Subject code: 160604					D	Date: 05/01/2013			
Sub	ject	Name: Water	r and Waste	water Engin	eering				
Tim	me: 02.30 pm - 05.00 pm Total Marks								
Inst	ruct	tions:							
	1.	Attempt any fiv	e questions.						
	2.	Make suitable a	-		y .				
	3.	Figures to the r	ight indicate fu	ll marks.					
Q.1	(a)	Enlist different types of water demand. explain the different factors							
		affecting the water demand.							
	(b)	Enlist different methods of population forecast. explain any three methods 0'.							
		in detail. The following data have been noted from the census department.							
Q.2	(a)	The following data have been noted from the census department.							
		Year	1981	1991	2001	2011			
		Population	16000	24000	34000	47000			
		Calculate the p		•					
		arithmetical inc		geometrical inc	crease method a	and decrease			
	(-)	rate of growth method. Enlist different types of pipes used for water supply. explain any two in 0							
	(a)	detail.	types of pipes	OR	supply, explair	any two in	07		
	(b)		tors offocting t	_	for an intaka	structuro	07		
Q.3	(b) Explain the factors affecting the site selection for an intake struct(a) Draw the layout of a water treatment plant. Explain function of each of the struct of the								
Ų.S	(a) (b)	Draw the layout of a water treatment plant. Explain function of each unit. Discuss various types of Rapid mixing devices in detail. 0' 0'							
	(~)	OR							
Q.3	(a)	Design a clariflocculator to treat 1.5 MLD of raw water.							
C	(b)	Design a rapid sand filter to treat 2.5MLD of raw water.							
Q.4	(a)	Explain different layouts of distribution network with their relative merits and demerits.							
	(b)	State different methods used for disinfection. Explain any two in detail. OR							
Q.4	(a)	Enlist various sewer appurtenances and write short note on any one.							
	(b)	What do you understand by unit operations and processes? what is its 07							
		importance in water and wastewater treatment? Elaborate various types of							
		unit operations used for wastewater treatment.							
Q.5		Design screen and grit chamber to cater 1.2MLD sewage.							
	(b)								
		neat sketch, the biological process involved in working of a trickling filter. OR							
Q.5	(a)		-	-		the treatment of	07		
		sewage by activ		ocess. Mention	the advantages	s and			
		disadvantages	•		co		^-		
	(b)	Design an active and suspended settling tank is k_d =0.05 and	solids of 25 mg/l. The v	g/l. The influent	t BOD ₅ follow	ing primary	07		
