Seat No.:	Enrolment No.

Subject Code: X40601

GUJARAT TECHNOLOGICAL UNIVERSITY PDDC- SEMESTER IV- • EXAMINATION – SUMMER - 2016

Date:18/11/2016

Su	bject	Name: Environmental Engineering		
Tiı	ne:0	2:30 PM to 5:00 PM Total Marks:	70	
Inst	tructio	ons:		
		Attempt all questions.		
	2.	ı v		
	3.	Figures to the right indicate full marks.		
Q.1	(a)	Forecast the population for 3 decades for a town having following population using (i) Arithmetical Ingress Method and (ii) Ingremental ingress method	07	
		using (i) Arithmetical Increase Method and (ii) Incremental increase method Year 1961 1971 1981 1991 2001		
		Population 35400 41600 49400 64900 83200		
	(b)	Explain (i) Dead end or tree-system (ii) Grid iron system for water distribution	07	
	(D)	with neat sketch.	U/	
Q.2	(a)	What objectives are achieved by aeration of water? Sketch and discuss cascade aerator.	07	
(b) Explain Lime Soda process for removal of Hardness from water.			07	
OR				
	(b)	Determine (i) Size of Rising Main (ii) H.P. Of pumps for following data	07	
		a. Population of a town - 3.0 Lacs		
		b. Per capita demand - 135 l/c/d		
		c. Lowest water level at water source - 30 m		
		d. Inlet level at Water treatment plant - 70 m		
		e. Length of Rising Main - 10 Km		
		f. Pump operating hours - 20 Hrs		
		g. Efficiency of pumps - 80%		
		h. Value of C - 130		
		i. Max allowable velocity in pipe - 2 m/s		
Q.3	(a) Describe the procedure to find out the optimum dose of coagulants.(b) Explain function and working of Rapid mixer with neat sketch.		07 07	
	(6)	OR	07	
Q.3	(a)			
~	(b)	Explain the process of anaerobic sludge digester.	07 07	
0.4				
Q.4	(a)	Discuss, aerobic suspended growth treatment of domestic waste water	07	
	(b)	Sketch and explain working of a trickling filter.	07	
0.4	(-)	OR	07	
Q.4	(a)	Explain variation in sewage flow Write note on Leving and Testing of Sewer	07 07	
	(b)	Write note on Laying and Testing of Sewer	U/	
Q.5	(a)	Explain in detail "Septic Tank"	07	
	(b)	Sketch and discuss operation of Stabilization Pond	07	
		OR		
Q.5	(a)	Draw neat sketch of conventional domestic waste water treatment plant and	07	
		write the function of each unit.		
	(b)	What is sedimentation? Explain sedimentation type-I for discrete particles.	07	
