Reg. No.										

MANIPAL INSTITUTE OF TECHNOLOGY

MANIPAL

(A constituent unit of MAHE, Manipal)

V SEMESTER B.TECH. (CIVIL ENGINEERING)
END SEMESTER EXAMINATIONS, NOV/DEC 2018
SUBJECT: WATER SUPPLY ENGINEERING [CIE 3103]
REVISED CREDIT SYSTEM
(23 /11 /2018)

Time: 3 Hours MAX. MARKS: 50

Instructions to Candidates:

- Answer ALL the questions & missing data may be suitably assumed

1A.	The population statistics if a town are given below. Estimate the population expected in 2021 and 2031 by (i) arithmetic increase method (ii) geometric increase method Year: 1961 | 1971 | 1981 | 1991 | 2001 | 2011 Population: 8,58,545 | 10,15,672 | 12,01,553 | 16,91,538 | 20,77,820 | 25,85,862	**(05)**	**CO1**
1B.	List and explain the factors affecting the location of an intake?	**(05)**	**CO1**
2A.	Explain the significance of the following with respect to water quality. (i) Turbidity (ii) pH of water (iii) Nitrates iv)Fluoride v) chloride	**(05)**	**CO2**
2B.	3 million liters of water per day is passing through a sedimentation tank which is 5 m wide, 20m long and having depth of 4m , (i). Find the detention time (ii).Compute the overflow rate (iii).If 60ppm is concentration of suspended particles in turbid raw water, how much dry solids will be deposited per day in the tank, assuming 70% removal in the basin and specific gravity of deposit as 2.	**(05)**	**CO3**
3A.	10mg of copperas is consumed with lime at a coagulation basin, per litre of water. Determine the quantity of copperas and quick lime required annually to treat 12 million litres of water.	**(05)**	**CO4**
3B.	Write a note on wet feeding and dry feeding devices used for coagulant dosage in coagulation unit	**(05)**	**CO4**
4A.	Explain with a neat sketch construction, working of rapid sand filter.	**(05)**	**CO4**
4B.	Mention all the methods of disinfection of water. Describe chlorine disinfection in detail	**(05)**	**CO4**
5A.	What is corrosion of pipe? Explain the various factors contributing for the corrosion pipes	**(05)**	**CO5**
5B.	Explain dead end distribution system with the help of a layout.	**(05)**	**CO5**