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JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT

T2 - EXAMINATION (October - 2019)

B.Tech. (III – SEM)

COURSE CODE: 18B11CE314 MAX. MARKS: 25

COURSE NAME: Water Supply Engineering

COURSE CREDIT: 3 MAX. TIME: 1.5 HR

Note: Attempt all questions. Assume suitable data if required. Carrying of mobile phone during examinations will be treated as case of unfair means. Calculator is allowed.

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1. **(a)** Explain the working of Lake Intake with the help of diagram? **(3 Marks)** **(CO-3)**

   (b) What precautions should be taken during sampling of water? **(2marks)** **(CO-4)**

2. A rectangular settling tank without mechanical equipment is to treat 1.7 million litres per day of raw water. The sedimentation period is to be 4 hours, the velocity of flow is 8 cm/ minute, and the depth of the water and sediment 4.2 m. if an allowance of 1.2 m for sediment is made, what should be the length and width of the basin? **(4 Marks)** **(C0-5)**

3. **(a)** What are the advantages and disadvantages of cast iron pipes? **(2 Marks)** **(CO-3)**

   (b) Define Intakes? What are the various types of intakes? **(2 Marks)** **(CO-3)**

4. The population of a locality as obtained from the census report is as follows:

Census Year	Population
1911	3,50,000
1921	4,66,000
1931	9,94,000
1941	15,60,000
1951	16,23,000

Estimate the population of the locality in the year 2001 by using incremental method?

(3 Marks) **(C01&2)**

5. 10 mg of copperas is consumed with lime at a coagulation basin, per litre of water. Determine the quantity of copperas and the quick lime required to treat 10 million litres of water? **(2 Marks) (CO- 6)**

6. (a) Explain in detail the MFT technique? **(3 Marks) (CO- 4&5)**

(b) Explain in details the constituents of a coagulation sedimentation plant? **(3 Marks) (CO-6)**

OR

(b) Two million litres of water per day is passing through a sedimentation tank which is 6 m wide, 15 m long and having a water depth of 3 m. find the detention time for the tank. What is the average velocity of flow through the tank? If 60 ppm is the concentration of the suspended solids present in turbid raw water, how much dry solids will be deposited per day in the tank, assuming 70% removal in the basin, and average specific gravity of the deposit as 2. Compute the overflow rate? **(3 Marks) (CO-5)**

7. Find the settling velocity of a discreet particle in water when Reynolds number is less than 0.5, the diameter and specific gravity is 2×10^{-3} cm and 2.65 respectively. The kinematic viscosity at 20 °C is given as 2.0001×10^{-2} cm^2/sec. **(1 Marks) (CO-4)**