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**PRESIDENCY UNIVERSITY  
BENGALURU**

**SCHOOL OF ENGINEERING  
MID TERM EXAMINATION - MAY 2023**

**Semester :** Semester VI - 2020

**Course Code :** CIV3035

**Course Name :** Sem VI - CIV3035 - Waste Water Treatment and Disposal Systems

**Program :** CIV

**Date :** 18-MAY-2023

**Time :** 10.30AM -  
12.00PM

**Max Marks :** 60

**Weightage :** 30%

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**Instructions:**

- (i) Read all questions carefully and answer accordingly.*
  - (ii) Question paper consists of 3 parts.*
  - (iii) Scientific and non-programmable calculator are permitted.*
  - (iv) Do not write any information on the question paper other than Roll Number.*
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**PART A**

**ANSWER ALL THE TWO QUESTIONS**

**2 X 5 = 10M**

1. One of the step of preliminary treatment consists of removal of dead animals, tree branches, papers, plastics, wood pieces, vegetables peels etc. In relation to this define screen and list the types of screens used in waste water treatment.  
(CO2) [Knowledge]
2. Sewerage system is the infrastructure of collecting, treating and disposal of sewage. It includes network of sewers used in collection, conveyance and disposal of sewage. List the type of sewerage systems and factors affecting dry weather flow.  
(CO1) [Knowledge]

**PART B**

**ANSWER ALL THE THREE QUESTIONS**

**3 X 10 = 30M**

3. Man holes are the openings of either circular or rectangular in shape constructed on the alignment of a sewer line to enable a person to enter the sewer for inspection, cleaning and flushing. Depict the suitable manhole which is provided when the difference in elevation of the invert levels of the incoming and outgoing sewers of the man-hole is more than 60 cm.  
(CO1) [Comprehension]

4. A BOD test conducted on a 12ml sample gave the following results.

a. DO of aerated water used for dilution= 4.9mg/l

b. DO of original sample= 0.9 mg/l

c. DO of diluted sample after 5 day incubation= 1.2mg/l.

Take deoxygenation constant at test temperature as 0.12.

Estimate its: 1) 5day BOD and 2) Ultimate BOD

(CO1) [Comprehension]

5. Design a screen device for a flow of 25MLD with approach velocity 1 m/sec. Assume depth of flow as 0.9 m, size of opening is 25 mm and diameter of bars = 10 mm. Also find the head loss through screen device. The bars are provided with an inclination 60 degrees to horizontal.

(CO2) [Comprehension]

### **PART C**

#### **ANSWER THE ONE QUESTION**

**1 X 20 = 20M**

6. Sewerage (or sewage system) is the infrastructure that conveys sewage or surface runoff (stormwater, meltwater, rainwater) using sewers. It encompasses components such as receiving drains, manholes, pumping stations, storm overflows, and screening chambers of the sanitary sewer. Sewerage ends at the entry to a sewage treatment plant or at the point of discharge into the environment. Illustrate the various sewerage systems with advantages and disadvantages.

(CO1) [Application]