B.Tech Sem – VI (2007 Course) (Civil Engg.) : SUMMER - 2019
SUBJECT: ENVIRONMENTAL SYSTEMS IN WATER & WASTE WATER TREATMENT

Day: Monday
Date: 27/05/2019

S-2019-3109

Time: 02.30 PM TO 05.30 PM
Max Marks. 80

N.B.

1) **Q. No. 1** and **Q. No. 5** are **COMPULSORY**. Out of remaining solve any **TWO** from each section
2) Answer to both the sections should be written in **SAME** Answer book.
3) Figures to the **RIGHT** indicate full marks.
4) Draw neat diagrams **WHEREVER** necessary.
5) Assume suitable data, if necessary.

SECTION - I

Q.1 **a)** What are different water demands? Explain. **(05)**
b) What is the necessity of water treatment? **(05)**
c) What is the importance of Filtration? **(04)**

Q.2 **a)** What are the factors affecting water demand? Explain. **(07)**
b) What are chemical characteristics of water? **(06)**

Q.3 **a)** What is Aeration? Explain one of the type of aerator. **(07)**
b) What is the difference between plain sedimentation and chemical assisted sedimentation? **(06)**

Q.4 **a)** What is the theory and mechanism of filtration? Explain. **(07)**
b) What is break point chlorination? Explain with neat sketch. **(06)**

SECTION - II

Q.5 **a)** What is sewer Appurtenances? **(05)**
b) What are different waste water sampling methods? Explain. **(05)**
c) What is the importance of oxygen sag curve? Explain with sketch. **(04)**

Q.6 **a)** What is sewage and how it is generated? Explain. **(07)**
b) What is pumping of sewage? Explain. **(06)**

Q.7 **a)** Define BOD & COD and explain the significance of it in waste water treatment. **(07)**
b) What is the kinetics of biological growth? Explain with sketch. **(06)**

Q.8 **a)** Design & Grit chamber using following data: **(07)**
i) Sewage flow = 10 MLD
ii) Grit size = 0.2 mm
iii) Specific gravity of grit = 2.65
iv) Temperature of sewage = 10
v) Desired Removal efficiency = 80%
vi) Constant n = ¼

Determine required surface overflow rate and number of grit channels with dimensions.

b) What is primary sedimentation tank with reference to purpose, type and function? **(06)**

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