



REGISTRATION NUMBER

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SRINIX COLLEGE OF ENGINEERING

2nd INTERNAL EXAMINATION-2018-19

Subject-**WSSE**

Semester-5TH

Branch-**CIVIL**

Full Mark-**50**

Time-**2.00Hrs**

ANSWER ALL QUESTIONS (PART-A)

[2X10=20]

1. Define the terms commonly used in sanitary engineering : refuse, garbage, sewage, sewerage, rubbish
2. What problems will be created if the waste water will not be treated properly?
3. What is partially combined system of sewerage? Why it is considered most suitable system in India?
4. List the factors those affect the quantity of storm sewage.
5. In what process of treatment do you observe the following phenomenon and why?
a) Sewage sickness b) Sludge bulking
6. Why removal of greasy and oily matters from the sewage is necessary.
7. In which situations chemical precipitation of sewage is used?
8. What is the principle of biological treatment of sewage?
9. Classify different types of activated sludge process.
10. Briefly write about bio-filters.

ANSWER ANY THREE QUESTIONS (PART-B)

[6X3=18]

1. What are the objectives of sewage disposal? Write the difference between separate and combined sewerage system.
2. Describe the collection methods of sewage disposal with merits and demerits of each method.
3. Write down various methods of disposal of sewage after proper treatment work and suitability of each method.
4. What are the troubles generally faced in filter site and what are the remedies?

ANSWER ANY ONE QUESTION (PART-C)

[12X1=12]

1. Describe the construction features of trickling filters.
a) The catchment area of a city is 200 hectares. Assuming that the surface on which the rain falls is classified as follows.

Types of surface	% Area	Runoff coefficient
Roofs	20	0.9
Pavements and yards	15	0.8
Lawns, gardens	30	0.15
Macadamised roads	20	0.40
Vacant plots	15	0.10

Calculate the impervious factor. If the maximum intensity of rainfall is 40 mm/hr, calculate the quantity of storm water which reach the sewer lines.

b) If the density of population is 300 persons/hectare and the rate of water supply is 250 lit/capita/day, calculate the quantity of sanitary sewage for a separate and partially separate system.

2. With the help of neat sketch explain the activated sludge process.

Determine the velocity of flow in a circular sewer of diameter 150 cm, laid on a slope of 1 in 750 while flowing full. The sewer is made in cast iron and is not very old. Calculate the velocity using

- Chezy's formula
- Crimp's and Burg's formula
- Bazin's formula
- Hazen William's formula

use the following constant values. Kutter's constant=0.020, Bazin's constant=0.3, Hazen William's constant=130, coefficient of roughness of sewer=0.013

*****ALL THE BEST*****