Code No: 136BT **R16**

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
B. Tech III Year II Semester Examinations, May - 2019
ENVIRONMENTAL ENGINEERING
(Civil Engineering)

Time: 3 hours **Max. Marks: 75**

Note: This question paper contains two parts A and B.
Part A is compulsory which carries 25 marks. Answer all questions in Part A. Part B consists of 5 Units. Answer any one full question from each unit. Each question carries 10 marks and may have a, b, c as sub questions.

PART - A

(25 Marks)

1.a)	What are the factors should be keep in mind while fixing the design period?	[2]
b)	Write down few water supply schemes in India.	[3]
c)	What is meant by coagulation and flocculation?	[2]
d)	Write down the types of disinfections in treatment of water.	[3]
e)	State what are factors mainly affect the quantity of storm sewage.	[2]
f)	Explain the time of concentration and its significance in design of storm sewers.	[3]
g)	Explain the screening operation in water treatment system.	[2]
h)	Explain the grit chamber in water treatment system.	[3]
i)	Explain the soak pit in brief along with neat sketch.	[2]
j)	What is meant by grit chambers?	[3]

PART – B

(50 Marks)

2.a) Differentiate confined and unconfined aquifers.
b) Explain the basic functioning of the hydrologic cycle. [5+5]

OR

3.a) Enlist the different methods of population forecast and state for which type of growing city Geometrical increase method is useful. By using Incremental increase method of population forecasting find out the probable population of a town in 2040AD for the given below.

Year	1970	1980	1990	2000	2010
Population	39000	54000	65000	83000	117000

b) Briefly discuss water quality testing. [5+5]

4.a) Discuss the theory of chlorination (write equations also).
b) Briefly explain-primary, secondary and territory treatment of water. [5+5]

OR

5.a) Write various disinfection treatment methods.
b) Briefly discuss the theory of filtration. [5+5]

6.a) Mention the various aspects you would keep in view when designing a sewer.

b) A 30 cm dia sewer an invert slope of 1 in 400 is flowing 1/3rd of the full depth. Calculate the velocity and the rate of flow in the sewer. Is it self-cleaning velocity? Use n=0.015. [5+5]

OR

7.a) Briefly discuss the advantages and disadvantages of combined system of sewage.

b) What are the methods of collection of sanitation? [5+5]

8.a) Discuss a primary sedimentation for treating 1.5 MLD of waste water. (with suitable assumptions).

b) State and explain 'dry weather flow'. [5+5]

OR

9.a) What are the features of fill and draw settling tanks.

b) Discuss the characteristics of sludge. [5+5]

10.a) What is ASP? Give the advantages and disadvantages of it.

b) What is activated sludge process? [5+5]

OR

11.a) Discuss the relationship between algae and bacteria during the treatment of sewage in an oxidation pond.

b) Discuss the most suitable low cost method of sewage treatment in tropical countries. [5+5]

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