Code No: 126AA **R13**

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
B. Tech III Year II Semester Examinations, May - 2017
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) Write notes on types of demands. [2]
b) What is protected water supply? [3]
c) Explain the theory of chlorination. [2]
d) Explain coagulation-flocculation. [3]
e) What are the shapes and materials used in design of sewers? [2]
f) Write about flushing tanks. [3]
g) Sketch the layout and general outline of various units in a wastewater treatment plant. [2]
h) Explain the need of design of screens. [3]
i) Write a note on self-purification of rivers. [2]
j) What is sewage farming? [3]

PART - B

(50 Marks)

2.a) Explain in detail about the population forecasting methods.
b) The population for a certain town is given below. Find out the population in the year 2020 and 2030 by geometrical increase method. [5+5]

Year	1970	1980	1990	2000	2010
Population	75,000	1,10,000	1,50,000	2,00,000	2,42,000

OR

3.a) What are the fluctuations in water demand?
b) What are the sources of water?
c) Write in detail about the water quality standards. [3+3+4]

4.a) Discuss in detail about the principal and working of a rapid sand filter.
b) Explain the troubles in operation of filters.
c) What is the role of a service reservoir in water distribution system? [3+3+4]

OR

5.a) With the help of sketches, discuss about the layouts of distribution systems.
b) Compare the working of slow and rapid gravity filters. [5+5]

6.a) Explain the conservancy and water carriage system.
b) Write briefly about sewer appurtenances. [5+5]

OR

7.a) Explain sanitary fittings, one pipe, and two pipe systems of plumbing.
b) Compare the differences between centrifugal and displacement type pumps. [5+5]

8.a) Explain the principle and working of trickling filter.
b) Write a detailed note on modified ASP. [5+5]

OR

9.a) Define Aeration.
b) Explain the principal and working of the Activated Sludge Processes. [5+5]

10.a) Explain the design and working principles of septic tank.
b) Describe in brief about oxidation ditches. [5+5]

OR

11.a) Enumerate working principles and design of soak pits.
b) Explain ultimate disposal of wastewater. [5+5]