Printed Pages: 4 **NEV-401**

(Following Paper ID and Roll No. to be filled in your Answer Books)	
Paper ID : 197404	**Roll No.**

B.TECH.

Theory Examination (Semester-IV) 2015-16

WATER SUPPLY AND TREATMENT ENGINEERING

Time : 3 Hours ***Max. Marks : 100***

Section-A

Q1. Attempt all parts. All parts carry equal marks. Write answer of each part in short. (2×10=20)

(a) What are the various methods of purification of water?

(b) Define Detention Period.

(c) Differentiate between slow sand filters and Rapid sand filters with respect to (i) Rate of filtration, and (ii) Loss of Head.

(d) What are the methods of population forecasting?

(e) What are the advantages and disadvantages of cast iron pipes?

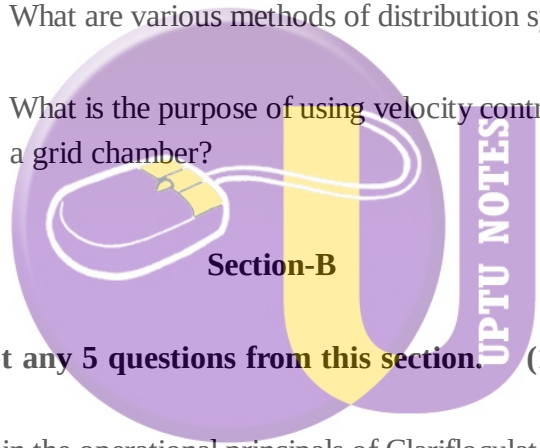
(f) How the corrosion of metal pipes is reduced?

(g) What are the factors affecting per capita demand?

(h) Write short notes on Demineralization process.

(i) What are various methods of distribution system?

(j) What is the purpose of using velocity control device in a grid chamber?



Section-B

2. Attempt any 5 questions from this section. (10 x 5=50)

(a) Explain the operational principals of Clarifloculator with neat sketch.

(b) Briefly explain the operation and maintenance of water treatment plants.

(c) Explain how ozone is helpful in disinfecting water. Discuss its limitation also.

(d) Differentiate temporary and permanent hardness. Explain any one method of removing permanent hardness.

(e) Following data were obtained from the census :

Year	Population
1980	56000
1990	72000
2000	84000
2010	93000

Find the population of 2030 and 2040 using any three methods.

(f) What is sedimentation tank? What are the different types of sedimentation tanks?

(g) What are pipe appurtenance? Explain in brief with neat diagram?

(h) Explain the different water distribution system layouts with neat sketches.

Section-C

Note: Attempt any 2 questions from this section. (15×2=30)

3. (a) Explain the Process of removal of iron and Manganese.

   (b) Compare simple graphical method and graphical comparison method for forecasting future population.

4. (a) Explain design criteria for rapid sand filter.

   (b) Explain the theory of filtration and troubles in RSF. Design a RSF for getting out flow of 0.2 cumecs.

5. (a) What are intake towers? Explain in brief with neat diagram?

   (b) Briefly explain the De-fluorination process.