5^{TH} SEM./ CIVIL / 2020(W) NEW

Th4 - Water Supply And Waste Water Engineering

Full Marks: 80 Time- 3 Hrs

Answer any five Questions including Q No.1& 2

Figures in the right hand margin indicates marks

1. Answer **All** questions 2 x 10

   a. Explain the term per capita demand?
   b. What is the yield of a well?
   c. Define specific yield?
   d. What is self cleaning velocity?
   e. What are the different methods for calculating population growth?
   f. What is sewage?
   g. What do you mean by hardness of water?
   h. Mention different types of traps in sewage system?
   i. What is screening?
   j. Define sewage farming.

2. Answer **Any Six** Questions 6 x 5

   a. Explain the type of water demand.
   b. Explain break point chlorination.
   c. Differentiate between slow sand filter and rapid sand filter?
   d. What are the preventive measures to avoid sewage sickness?
   e. Determine the velocity of flow in a circular sewer of diameter 150cm.Laid on slope of 1 in 500 while running full by using Chezy's formula. The value of C =70.
   f. Explain manhole with sketch?
   g. Discuss roof top rain water harvesting with figure.

3. The population of 5 decade from 1930 to 1970 are given below. Find out the population after one, two and three decade beyond the last known decade, by using arithmetic increase method. 10

Year	1930	1940	1950	1960	1970
Polutation	25000	28000	34000	42000	47000

4. Sketch and describe in details the working of slow sand filter. 10

5. Describe about the factors affecting per capita demand? 10

6. Describe the process of primary treatment of sewage with help of flow diagram. 10

7. Write down various types of sewer appurtenance. 10

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1. Answer **All** questions 2 x 10

a. Explain the term per capita demand?

b. What should be the PH of portable water?

c. What is yield of well?

d. What do you mean by cone of depression?

e. Define garbage?

f. Temporary hardness of water is generally removed by which method?

g. What is the function of manhole?

h. Define self cleaning velocity?

i. What is sewerage?

j. What is the function of algae in sewage?

2. Answer **Any Six** Questions 5X6

a. Explain the different types of fire demand.

b. Differentiate between slow sand filter and rapid sand filter?

c. Explain manhole with sketch?

d. Write down about the physical characteristic of portable water?

e. Write down the difference between water supply pipes and sewer pipes?

f. Determine the velocity of flow in a circular sewer of diameter 150cm.Laid on slope of 1 in 500 while running full by using Chezy's formula. The value of C =70.

g Describe different shapes of sewer pipes with figure?

3 The population of 5 decade from 1980 to 2020 are given below. Find out the population after one, two and three decade beyond the last known decade, by using arithmetic increase method. 10

Year	1980	1990	2000	2010	2020
Population	35000	38000	44000	52000	57000

4 Describe about secondary treatment of water? 10

5 Write down about physical, chemical and biological characteristic of sewage? 10

6 Describe about secondary treatment of sewage? 10

7 Write down the different properties about various types of pipes? 10