SARDAR PATEL UNIVERSITY
M.Sc. (EST) (First Semester) Examination
Thursday, 27th, October 2016
10.00 a.m. to 1:00 p.m.
PS01CEST09: Water Pollution and Control Technology

Max. Marks: 70

Q.1.   Multiple Choice Questions (Choose Correct Answer)   [08]

1.) Dengue, is a water .... Disease.
   a) Related   b) Washed   c) Based   d) Borne
2.) The top layer of the saturation zone is called as ....
   a) Saturation zone   b)   water table   c) Aquifer   d) Capillary fringe
3.)...............at higher dose causes digestive tract cancer.
   a)Nitrate   b) Chromium   c) Arsenic   d) all of the above
4.) The slotted tube well of the pipe is surrounded by ....
   a) Jute   b) strainer   c) Gravel   d) Mesh
5.) .... is removed by the Oxidation process in case of aeration treatment.
   a) Taste and Odor   b) Iron& Manganese   c) CO_2 d) Bacteria
6.)Choose odd one out of the following:
   a) lakes   b) Streams   c) Infiltration galleries   d) Stored rain water harvesting
7.) In case of deep lentic water bodies, several samples are drawn ....
   a) Vertically   b) Horizontally   c) Both (a&b)   d)Non of the above
8.) Water contains excess of free available chlorine, which is to be removed before acceptable   consumers. The treatment is called.......
   a) Breakpoint chlorination b) Dechlorination   c) Super chlorination d)Combined available   residual chlorination

Q.2.   Write a Short Note on followings (Any Seven).   [14]
   1. Driven well
   2. Explain the terms: Auitard and Auifuge
   3. Factors affecting the rate of demand
   4. Flow Diagram for Ground water Treatment
   5. Mechanisms of Disinfection
   6. Need of sample and Types of samples
   7. Preservation of Samples
   8. Sedimentation treatment of Surface water
   9. Sulphide Generation Mechanism in Sewer

Q.3. a) Given the following data, calculate the population at the end of four and five decades by Incremental increases method, decreasing rate method.   [06]

Year	1940	1950	1960	1970
Population	80000	1,20,000	1,68,000	2,28,580

b) Explain the significance of Quality criteria of the following water parameters.   [06]
   Alkalinity   ii) Arsenic   iii) Lead

OR

b) Enumerate Specific agent, Reservoir, Common vehicle & Symptoms in brief for   [06] following diseases.
   i) Hepatitis   ii) Tuberculosis   iii) Diphtheria

Q.4. a) How the springs are formed? Explain the different types of spring with diagram. **[06]**
    b) 1. Write a note on Impounded Reservoir. **[03]**
       2. Explain the fire and domestic water demand. **[03]**
<div align="center">OR</div>

    b) 1. How to control Saline water intrusion? Explain the different methods. **[03]**
       2. Describe the different zones of ground water with diagram. **[03]**

Q.5.a). Explain the different artificial recharge methods of ground water related to surface
    Techniques. **[06]**

Q.5.b). Discuss benefits and disadvantages of different coagulants used for water **[06]**
    treatment.
<div align="center">OR</div>

    b) What is the purpose of SSF? Explain the different types of material available for the
    filtration process. **[06]**
Q.6. a) Why we go for the backwashing of filter medium? Explain the working of rapid
    sand Filtration. **[06]**
    b) Explain the different water chlorine reactions in details. **[06]**
<div align="center">OR</div>

    b) Describe the different free available residual chlorination methods related to
    chlorination practices. **[06]**