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SEAT No. _____

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SARDAR PATEL UNIVERSITY,

M.Sc. Environmental Science and Technology (EST)

I Semester

Max. Marks: 70

8th November, 2017

10.00 a.m. to 1:00 p.m.

PS01CEST23: Water Pollution and Control Technology

Q.1. Multiple Choice Questions (Choose Correct Answer)**[8 X 1]**

- 1.) Water whose color is partly to suspended matter is said to have
a) True b) Apparent c) Brackish d) none
- 2.) Scabies is a water
a) Borne b) Related c) Washed d) Based
- 3.) Temporary hardness is caused by
a) Nitrate & Sulphate b) Carbonate c) CaSO₄ d) all of the above
- 4.) Pre-Chlorination improves
a) Quality b) Strainer c) Gravel d) Mesh
- 5.) is removed by the Oxidation process in case of aeration treatment.
a) Taste and Odour b) Iron & Manganese c) CO₂ d) Bacteria
- 6.) Confined aquifer is known as
a) Water table b) Artesian aquifer c) Phreatic aquifer d) All
- 7.) Choose odd man out:
a) Chlorination b) Ozonation c) Lime Soda Ash treatment d) UV Radiation
- 8.) Water contains excess of free available chlorine which is to be removed before acceptable consumers. The treatment is called.....
a) Breakpoint chlorination b) De-chlorination c) Super chlorination d) Combined available residual chlorination

Q.2. Write a Short Note on followings (Any Seven).**[7 X 2]**

- a) Pre-chlorination treatment
- b) Explain the terms: Aquitard and Aquifuge
- c) Type of samples
- d) Water is polar solvent
- e) Clarifier treatment
- f) Porous Pipe Galleries
- g) Mechanisms of Disinfection
- h) Policy metering- Effect on Water demand

(1)

CPTO

i) Sources of Turbidity in water

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

| Year | 1940 | 1950 | 1960 | 1970 |
|------------|-------|----------|----------|----------|
| Population | 80000 | 1,60,000 | 1,70,000 | 2,30,580 |

b). Explain the significance of the following from the point of view of water Quality criteria. [06]

i) Solids, ii) Chromium iii) Lead

OR

b.1) What are the different sources of Nuisance Organisms in water? [03]

b.2) Enumerate Symptoms in brief of the following diseases. [03]

i) Shigellosis ii) Bacillary dysentery

Q.4. a) Classify the different types of wells. Explain the different types of tube wells with Diagram [06]

b) 1 Write a note on Infiltration gallery. [03]

b) 2. Objectives of aeration treatment. [03]

OR

b) 1. How to control Saline water intrusion? Explain the different methods. [03]

b) 2. Write a note on Contour bund and stream augmentation [03]

Q.5.a). Describe about groundwater hydrology in detail with suitable diagram. [06]

b). Explain the coagulation Process. Discuss benefits and disadvantages of different coagulants used for water treatment. [06]

OR

b) What is the purpose of SSF? Explain the different types of material available for the filtration process. [06]

Q.6. a) Why backwashing is important for filter medium? Explain the Theory of Filtration Treatment. [06]

b) Explain the different water chlorine reactions in details. [06]

OR

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