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SEAT No. _____

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SARDAR PATEL UNIVERSITY
M.Sc. (EST) (First Semester) Examination
Friday, 22nd, March 2019
10.00 a.m. to 1:00 p.m.

PS01CEST23: Water Pollution and Control Technology

Max. Marks: 70

Q.1. Multiple Choice Questions (Choose Correct Answer)

[08]

- 1.) Cynosis is caused by
a) Arsenic b) Nitrate c) Mercury d) Lead
- 2.) Perforated pipe tube-wells covered by
a) Mesh b) Strainer c) Jute d) Gravels
- 3.) An aquifer is .
a) a brand of bottled water b) an underground layer of porous, water bearing material
c) an above ground storage facility d) a deep water well
- 4.) Pre-chlorination is to remove,
a) Tastes and odour b) Suspended solids c) Dissolved solids d) Iron and Manganese
- 5.) Alum is effective when pH of water is between _____
a) 8-10 b) 6-8 c) 6.5-8.5 d) 7-9
- 6.) What is the standard for TDS for aesthetic considerations?
a) 250 mg/l b) 500 mg/l c) 750 mg/l (d) 1000 mg/l
- 7.) Disinfection of water helps in:
a) removing turbidity b) developing pathogenic bacteria c) killing pathogenic bacteria
d) complete sterilization
- 8.) Which chlorine serves as, which serve as a disinfectant is
a) Free chlorine b) Free Residual chlorine c) Chlorine demand d) Residual demand

Q.2. Write a Short Note on followings (Any Seven).

[14]

1. Water is Polar solvent
2. Flocculation Process
3. Ion exchange
4. Electrodialysis
5. Clarifier treatment
6. Bacteria as a Pathogen
7. Rapid Sand filter and Slow Sand filter
8. Impounded reservoir
9. Algae as Nuisance organism

①

(P.T.O)

Q.3. A) Calculate the population at the end of four, five decades by Arithmetic mean method from the following data. [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) Acidity ii) Mercury iii) Dissolved solids

OR

B.i) Write a note on sulphur oxidizing and sulphur reducing bacteria. [03]

B.ii) Enumerate Symptoms in brief of the following diseases. [03]
i) Shigella ii) Typhoid iii) Cholera

Q.4. A) Classify the different types of springs and wells with diagram. [06]

B.i) Explain quality of Pond and River water. [03]

B.ii) Discuss the control methods of saline water intrusion. [03]

OR

B.i) Describe the different Aeration treatment methods. [03]

B.ii) Explain the terminology aquifer, vadose zone and water table [03]

Q.5. A) Explain the ground water improvement techniques. [06]

Q.5. B) Why backwashing is necessary for filtration? Explain about slow sand and rapid sand filtration. [06]

OR

B) What do you mean by coagulant? Explain different types of coagulants used for water treatment with advantages and disadvantages. [03]

Q.6. A) Explain Disinfection in treating public water supply. Write a note on chemicals used in disinfectants treatment with merits and demerits. [06]

B) What methods are commonly used for desalination of water? Explain reverse osmosis in details? [06]

OR

B) How refractory organics are removed from water and wastewater? Discuss in detail use of granular activated carbon and powdered activated carbon as an adsorbent with their merits and limitations. [06]

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