

PSG COLLEGE OF ARTS & SCIENCE
(AUTONOMOUS)

MSc DEGREE EXAMINATION DECEMBER 2023
(Second Semester)

Branch - ENVIRONMENTAL SCIENCE

WATER POLLUTION AND MANAGEMENT

Time: Three Hours

Maximum: 50 Marks

SECTION-A (5 Marks)

Answer ALL questions

ALL questions carry EQUAL marks

(5 x 1 = 5)

- Find the bonding between the elements of a water molecule is primarily attributed to
 - Double bond
 - Hydrogen bond
 - Covalent bond
 - Ionic bond
- Indicate the temporary hardness is caused due to
 - Magnesium carbonate
 - Calcium sulphate
 - Magnesium sulphate
 - Magnesium chloride
- Name the addition of a coagulant to water results in the formation of
 - Scum
 - Soap
 - Bubbles
 - Floc
- What is the pore size of reverse osmosis membranes?
 - 0.0005microns
 - 0.005microns
 - 0.05microns
 - 0.5microns
- Identify the carbon emission results from the treatment of one cubic meter of wastewater
 - 0.0576 kg CO₂-e/m³
 - 0.0567 kg CO₂-e/m³
 - 0.0476 kg CO₂-e/m³
 - 0.0467 kg CO₂-e/m³

SECTION - B (15 Marks)

Answer ALL Questions

ALL Questions Carry EQUAL Marks

(5 x 3 = 15)

- Discuss the factors that affect the solubility of gas in water.
(or)
 - Explain in detail about the physical and chemical properties of water.
- Discuss the factors that are to be considered before discharging wastewater into the ground.
(or)
 - Classify rivers based on water quality and designated use in India.
- Explain the process and purpose of aeration in wastewater treatment.
(or)
 - Enumerate the key roles of CPHEEO standards on water.
- Analyze the pros and cons of different types of membrane technologies in water treatment.
(or)
 - Explain the characteristics and dewatering methods of sludge.
- Elucidate the role and application of biofilm in wastewater treatment.
(or)
 - State the Centralized and Decentralized reuse of wastewater.

Cont...

SECTION -C (30 Marks)

Answer ALL questions

ALL questions carry EQUAL Marks

(5 x 6 = 30)

11. (a) Elucidate the watershed management from the perspective of aquifers.
(or)
(b) Appraise the status of water resources in India.
12. (a) Assess the sources, characteristics, and effects of thermal pollution on marine flora and fauna.
(or)
(b) Evaluate different types of water sampling procedures and preservation techniques.
13. (a) Enumerate different types of trickling filters in wastewater treatment with suitable diagrams.
(or)
(b) Justify why sedimentation is used in water treatment. List sedimentation tank types with a diagram.
14. (a) Enumerate the different tertiary wastewater treatment methods and evaluate the efficiency of each method.
(or)
(b) Analyse the different adsorbents used in wastewater treatment and explain any one in detail.
15. (a) Construct a clear flow chart of water audit processes for an industry.
(or)
(b) Justify how Common Effluent Treatment Plants (CETP) vary from others. Write CETP's major benefits.

Z-Z-Z

END