PSG COLLEGE OF ARTS & SCIENCE
(AUTONOMOUS)

MSc DEGREE EXAMINATION MAY 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)

1   An area of land that collects water after rainfall, typically bounded by hills is known as
   (i)   Watershed   (ii) Catchment
   (iii) Lake   (iv) Dyke

2   _____ is accomplished by the replenishment of oxygen lost to bacterial degradation of organic waste.
   (i) Gas transfer   (ii) Dilution
   (iii) Filtration   (iv) Re-suspension

3   The _____ system could treat grey water, faecal sludge and industrial waste water as long as the pollution to be treated is biodegradable.
   (i)   Activated sludge   (ii) Disinfection
   (iii) Clarifier   (iv) Tertiary

4   The higher concentration of nitrate-N when added to the aquatic ecosystem results in enhanced algal growth, which further results in oxygen depletion. The methods used for nitrate removal are _____.
   (i)   Ion exchange resins   (ii) Reverse Osmosis
   (iii) Biological Denitrification   (iv) (i), (ii) and (iii)

5   The carbon footprint is most accurately calculated using _____.
   (i)   Input analysis method   (ii) Output analysis method
   (iii) Life Cycle Assessment   (iv) Direct emission and removal

SECTION - B (15 Marks)
Answer ALL Questions
ALL Questions Carry EQUAL Marks   (5 x 3 = 15)

6   a   Explain the significance of watershed management.
                    OR
   b   Discuss the trace elements and their importance.

7   a   Explain eutrophication.
                    OR
   b   Classify the rivers based on water quality.

8   a   State the method of coagulation.
                    OR
   b   Discuss method of removal of iron and manganese in waste water.

9 a Illustrate electrodialysis.

OR

b Explain plasma gasification on sludge management.

10 a Discuss Zero Liquid Discharge.

OR

b Explain the steps of water audit.

SECTION -C (30 Marks)
Answer **ALL** questions
ALL questions carry **EQUAL** Marks   (5 x 6 = 30)

11 a Summarise the various properties of water.

OR

b Point out the status of water resources in India.

12 a Justify how flowing rivers clean itself with suitable examples.

OR

b Classify water pollutants and differentiate point and non-point sources of pollutants.

13 a Elucidate the drinking water standards prescribed by BIS and CPHEEO regulatory agencies.

OR

b Differentiate aerobic and anaerobic treatment technologies with suitable examples.

14 a Explain the methods used for sludge dewatering.

OR

b Elucidate the membrane technologies used in wastewater treatment.

15 a Appraise and explain CETP and carbon foot print in water treatment plants.

OR

b Critically analyze the wastewater reuse and recycling with a case study.

Z-Z-Z   END