

PSG COLLEGE OF ARTS & SCIENCE
(AUTONOMOUS)

MSc DEGREE EXAMINATION MAY 2024
(Third Semester)

Branch – ENVIRONMENTAL SCIENCE

MAJOR ELECTIVE COURSE – I : ENVIRONMENTAL ENGINEERING

Time: Three Hours

Maximum: 50 Marks

SECTION-A (5 Marks)

Answer ALL questions

ALL questions carry EQUAL marks

(5 x 1 = 5)

- 1 One of the following is a unit operation.
(i) Activated Sludge Process (ii) Trickling filter
(iii) Anaerobic digestion (iv) Grit chamber
- 2 The maximum aeration period in an Activated sludge process is
(i) 2 hours (ii) 3 hours
(iii) 4 hours (iv) 6 hours
- 3 The reactor process that involves a single complete mix type reactor in which aeration takes place followed by clarification, and sludge settles when aeration is shut down and a drainage mechanism used to draw off the supernatant liquor is called as
(i) Moving Bed Bioreactor (ii) Membrane Bio-Reactor
(iii) Sequential Batch Reactor (iv) Anaerobic Sludge Blanket Reactor
- 4 Which one of the following disinfectant damages the constituents of the nucleic acids and break carbon nitrogen bonds?
(i) Chlorine (ii) Sodium hypochlorite
(iii) UV radiation (iv) Ozone
- 5 Looping plume will occur during
(i) Unstable condition (ii) Stable condition
(iii) Neutral condition (iv) Inversion

SECTION - B (15 Marks)

Answer ALL Questions

ALL Questions Carry EQUAL Marks

(5 x 3 = 15)

- 6 a Explain unit operations and unit processes.
OR
b State the types of settling.
- 7 a Explain Mixed liquor suspended solids.
OR
b Illustrate high rate and extended aeration process and its application.
- 8 a Identify the types of anaerobic reactors.
OR
b Illustrate Moving Bed Bio-reactor (MBBR).
- 9 a Explain Electro dialysis reversal.
OR
b Classify disinfection methods.

Cont...

- 10 a State the principles of minimum stack height.
OR
b Evaluate settling chamber and cyclone collector.

SECTION -C (30 Marks)

Answer ALL questions
ALL questions carry EQUAL Marks (5 x 6 = 30)

- 11 a Categorize the stages of wastewater treatment, unit operations and processes.
OR
b Elucidate coagulation and flocculation process in wastewater treatment.
- 12 a Describe the process involved in Activated sludge process.
OR
b Justify the role of aerators in wastewater treatment.
- 13 a Appraise the role of attached growth mechanism in wastewater treatment.
OR
b Compare Sequencing batch reactor and membrane bio-reactor.
- 14 a Examine the significance of reverse osmosis.
OR
b Formulate schemes for the treatment of Industrial effluents.
- 15 a Describe Electrostatic precipitator and its role in air pollution control.
OR
b Elucidate air pollution control and monitoring.

Z-Z-Z

END