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U.G. (CBCS) DEGREE EXAMINATION,
NOVEMBER 2024

Third Semester

Chemistry

Non-Major Elective — WATER MANAGEMENT

(For those who joined in July 2021 and 2022 only)

Time : Three hours

Maximum : 75 marks

PART A — (10 × 1 = 10 marks)

Answer ALL questions.

Choose the correct answer.

1. Which of the following is a common chemical pollutant found in water bodies?
(a) Nitrogen gas (b) Oxygen gas
(c) Sodium chloride (d) Mercury
2. Which of the following is an example of a point source of water pollution?
(a) A leaking underground storage tank
(b) A septic system
(c) Acid rain
(d) A discharge pipe from a factory

3. Which organization sets the drinking water quality standards for India?
(a) BIS (b) WHO
(c) ISO (d) ICMR
4. Which of the following is a chemical water quality parameter?
(a) BOD (Biochemical Oxygen Demand)
(b) Coliform bacteria count
(c) pH
(d) Total Coliform count
5. Which of the following processes involves the addition of chemicals to destabilize suspended particles in water and make them stick together?
(a) Filtration
(b) Chemical coagulation
(c) Disinfection
(d) Sedimentation
6. Which of the following is used in desalination to remove salt from seawater?
(a) Filtration (b) Disinfection
(c) Reverse osmosis (d) Sedimentation

7. Which of the following is a tertiary treatment process used in wastewater treatment?
(a) Grit removal (b) Sedimentation
(c) Filtration (d) Chlorination
8. Which of the following is a biological treatment process used in wastewater treatment?
(a) Grit removal
(b) Chemical coagulation
(c) Sedimentation
(d) Activated sludge process
9. Which of the following irrigation techniques is the most water-efficient?
(a) Flood irrigation (b) Sprinkler irrigation
(c) Drip irrigation (d) Surface irrigation
10. Which of the following initiatives was launched by the Indian Government in 1985 to improve the water quality of the Ganga River?
(a) Jal Shakti Abhiyan
(b) Swachh Bharat Abhiyan
(c) National River Conservation Plan
(d) Atal Mission for Rejuvenation and Urban Transformation

PART B — (5 × 5 = 25 marks)

Answer ALL the questions choosing either (a) or (b).
Each answer should not exceed 250 words.

11. (a) What is eutrophication and what are the main causes of this phenomenon?
Or
(b) What are the main sources of water pollution and how do they impact water quality?
12. (a) What is the role of BIS and WHO in setting water quality standards?
Or
(b) What is turbidity and how is it measured in water quality assessment?
13. (a) What is chemical coagulation and how is it used in water treatment?
Or
(b) What is sedimentation and how is it used in water treatment?

14. (a) Write a note on anaerobic water treatment.

Or

(b) Write a note on chemical precipitation.

15. (a) Explain the water prevention and control of pollution act of 1974.

Or

(b) Write a note on drip irrigation.

PART C — (5 × 8 = 40 marks)

Answer ALL the questions choosing either (a) or (b).
Each answer should not exceed 600 words.

16. (a) Explain the role of radioactive materials in water pollution.

Or

(b) Write a note on industrial effluents and their treatment.

17. (a) What is salinity and how does it affect water quality?

Or

(b) What are the chemical and biological water quality parameters and how are they used to assess water quality?

18. (a) What is disinfection and why is it an important step in water treatment?

Or

(b) What is the ion exchange process and how is it used in water treatment?

19. (a) Write a note on pre treatment of waste water.

Or

(b) Explain the primary treatment of waste water.

20. (a) Give a brief account of river Gang action plan.

Or

(b) Write a note on rain water harvesting.
