

M.Sc Sem.-2 Examination

P - 407

Environmental Science

June 2022

Time : 2-00 Hours]

[Max. Marks : 50

Instructions: All Questions in **Section I** carry equal marks
 Attempt any **THREE** Questions in **Section I**
 Questions IX in **Section II** is **COMPULSORY**
 Draw neat and labelled **diagrams** wherever necessary

Section I

- | | | |
|--------|---|---|
| Q I | A. Address available water resources and their various sources. | 7 |
| | B. Explain the various processes of the hydrological cycle and how they work. | 7 |
| Q II | A. What natural factors have an impact on water quality? | 7 |
| | B. Write a short note on hydrological cycle. | 7 |
| Q III | A. Explain what is the Winkler Method and How does It work? | 7 |
| | B. Why do we conduct wastewater testing? Describe the sampling techniques. | 7 |
| Q IV | A. What is water hardness and how is it measured? | 7 |
| | B. Prepare a list of things to complete before sampling? Explain the pH analysis method for a water sample. | 7 |
| Q V | A. Describe the chemical and physical procedures used to clean wastewater. | 7 |
| | A. Illustrate sedimentation and floatation in wastewater treatment. | 7 |
| Q VI | A. Explain biological aerobic treatment for treating wastewater. | 7 |
| | B. Explain how advanced wastewater treatment can be used to remove suspended sediments. | 7 |
| Q VII | A. Explain the industrial working procedures and wastewater treatment techniques of the tanneries industry. | 7 |
| | B. Explain the pulp and paper industry's industrial working operations and wastewater treatment techniques. | 7 |
| Q VIII | A. Explain the Pesticides industry's industrial working methods and wastewater treatment processes. | 7 |
| | B. Discuss the Fertilizer Company's industrial working processes and wastewater treatment operations. | 7 |

Section II

- | | | |
|------|---|---|
| Q IX | MCQs | 8 |
| 1 | The best groundwater reservoirs have _____? | 1 |
| A | low permeability and low porosity | |

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- B low permeability and high porosity
 C high permeability and low porosity
 D high permeability and high porosity
- 2** Which characteristics of ground water is false? 1
 A Low colour
 B High mineral
 C High hardness
 D High DO
- 3** Wastewater released from the household is called 1
 A Sludge
 B Sewage
 C Debris
 D Spoilage
- 4** What is the mathematical expression of BOD? 1
 A $BOD = [(D1-D2)-(B1-B2)f]/P$
 B $BOD = [(D1-D2)-(B1-B2)f]$
 C $BOD = [(D1-D2)f]/P$
 D $BOD = [(D1-D2)-(B1-B2)]/P$
- 5** Assertion (A): The depletion of oxygen leads to the 1
 death of aerobic microbes but promotes the thriving of
 anaerobic organisms.
 Reason (R): When non-biodegradable material get into
 water, number of aerobic microbes increases and they
 use up all oxygen.
 A Both (A) and (R) are true and (R) is the correct
 explanation of (A)
 B Both (A) and (R) are true and (R) is the not correct
 explanation of (A)
 C (A) is true; (R) is false
 D (A) is true; (R) is true
- 6** Sample is formed by combining and mixing all, the 1
 primary samples taken from the lot is called:
 A Primary sample
 B Sub sample
 C Composite sample
 D Grab sample
- 7** Which of the following statements about anaerobic 1
 wastewater treatment is correct?
 A the energy input of the system is high
 B Little energy is required for oxygenation
 C Creation of surplus sludge is reduced.
 D All of the above
- 8** Ammonia is transformed to ____ during nitrification. 1
 A Nitrate
 B Nitrite
 C Nitrogen
 D Urea