Progressive Education Society's
Modern College of Arts, Science & Commerce Ganeshkhind, Pune – 16
(Autonomous)
End Semester Examination: MAR / APR 2025
Faculty: Science and Technology

Program: BScGen03 **Semester:VI** **SET: A**
Program (Specific): Microbiology **Course Type: DSEC**
Class: T.Y.B.Sc. **Max.Marks: 35**
Name of the Course: Waste Management
Course Code:24-MB-3610 **Time: 2Hr**
Paper: VII

Instructions to the candidate:

1) *There are 4 sections in the question paper. Write each section on separate page.*
2) *All Sections are compulsory.*
3) *Figures to the right indicate full marks.*
4) *Draw a well labelled diagram wherever necessary.*

SECTION: A

Q1) Attempt the following questions. **5**

a) Define F/M ratio with reference to activated sludge process.

b) Enlist the types of aerated lagoon.

c) What role do microorganisms play in wastewater treatment?
i) They cause pollution
ii) They break down organic matter
iii) They increase turbidity
iv) They change the pH level

d) A Stabilization Pond primarily works by:
i)Filtering suspended solids from the wastewater
ii)Allowing sunlight and bacteria to degrade organic matter
iii)Using chemicals to neutralize pollutants
iv)Providing mechanical aeration to the water

e) Which parameter is used to determine the degree of organic pollution in wastewater?
i) Total Suspended Solids (TSS)
ii) Chemical Oxygen Demand (COD)
iii) Sulphates
iv) Electrical conductivity

Q2) Attempt any FOUR from the following. **4**

a) Define primary treatment of waste water.
b) Enlist types of hazardous waste.
c) Enlist the types of screenings in waste water treatment.
d) What are Total Solids (TS).
e) Enlist the steps involved in anaerobic digestion process.
f) Discuss importance of aeration in activated sludge process.

SECTION: B

Q3) Attempt any FOUR from the following. **8**

a) Summarize the process involved in Oxidation pond.
b) Describe characteristic and risks of a hazardous substance.
c) Draw a neat labeled diagram of facultative stabilization pond.
d) Discuss fluidized bed bioreactor in waste water treatment.
e) Draw a neat, labelled diagram of activated sludge process.
f) Discuss constituent of Waste water.

SECTION: C

Q4) Attempt any FOUR from the following. **8**

a) Device a protocol to determine the BOD.
b) Differentiate between attached growth processes and suspended growth process in waste water treatment.
c) Discuss advantages and limitation of reverse osmosis with reference to tertiary waste water treatment.
d) Explain physical characteristics of waste water.
e) Describe treatment of waste water using Imhoff tank.
f) Enlist natural and synthetic coagulant used in coagulation and flocculation of primary treatment of waste water.

SECTION: D

Q5) Attempt any TWO from the following. **10**

a) Describe principle and working of the trickling filter.
b) Discuss Flow equalization. Add a note on its advantages and limitations.
c) Evaluate the benefits and limitations of using a rotating biological contactor (RBC) for wastewater treatment.
d) Device a protocol for production of Vermicomposting from solid biodegradable waste.