

QB365 Question Paper Software
12th Standard - Biology
Microbes in Human Welfare Case Study Questions

Exam Time: 00:30 Hrs

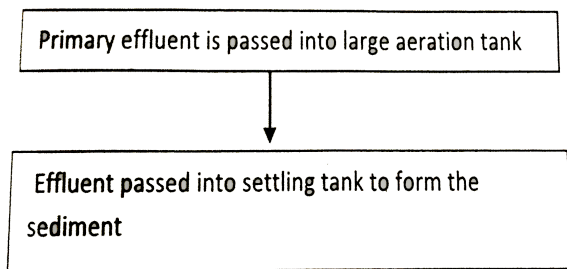
Date: 2025-10-14

Total Marks: 8

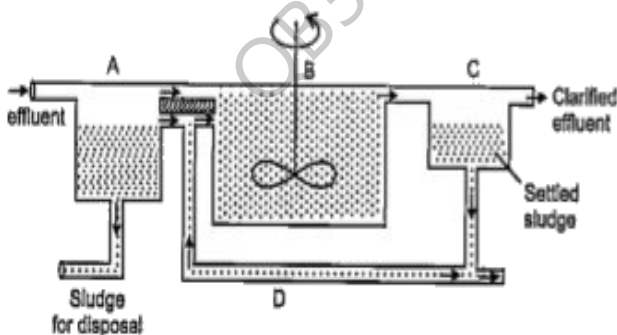
Questions:

Case Study Questions

1. Large quantities of sewage is generated everyday in cities and towns, which is treated in Sewage Treatment Plants (STPs) to make it less polluted. Given below is the flow diagram of one of the stages of STP. Observe the given flow diagram and answer the questions accordingly.



- Why is the primary effluent passed into large aeration tanks?
 - Write the technical term used for the sediment formed. Mention its significance.
 - Explain the final step that results in the formation of biogas in the large tank before the treated effluent is released into water bodies.
2. **Read the following and answer any four questions from (i) to (v) given below:**
- Saurin, a M.Sc student, get an assignment on sewage treatment plant (STP) to study the locality, he makes a Simplified diagram of the STP for his project. Study the diagram given below:



- In the diagram A denotes
 (a) aeration tank (b) primary settling tank (c) secondary settling tank (d) sludge digester.
- Which of the following is incorrect regarding the sludge released from A?
 (a) It is formed after primary treatment. (b) It does not require aeration. (c) It possesses flocculating microbes.
- A large number of aerobic heterotrophic microbes grow in
 (a) A (b) B (c) C (d) both (a) and (b).
- What is denoted by 'D' in the given diagram?
 (a) Primary sludge (b) Primary effluent (c) Activated sludge (d) Secondary effluent

- (v) **Assertion:** The colloided and finely suspended matter of sewage form aggregates which
Reason: Floes contain masses of bacteria, slime and fungal filaments.
- (a) Both assertion and reason are true and reason is the correct explanation of assertion.
(b) Both assertion and reason are true but reason is not the correct explanation of assertion.
(c) Assertion is true but reason is false.
(d) Both assertion and reason are false.
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Answers Key:

Case Study Questions

1. (a) It is to facilitate the vigorous growth of the useful aerobic microbes to form floes, which consume a large part of the organic matter.
(b) (i) Activated sludge
(ii) A small part of it is transferred to aeration tank as inoculum; it is used for production of biogas also.
(c) (i) The anaerobic microbes digest the floes in the anaerobic sludge digester and produce gases like carbon dioxide, methane and hydrogen sulphide that form biogas.
2. (i) (b): In the given diagram, A-primary settling tank, B-aeration tank, C-secondary settling tank
(ii) (c): Primary sludge does not possess floes of decomposer microbes. These are formed during secondary treatment.
(iii) (b) : A large number of aerobic heterotrophic microbes grow in the aeration tank (B).
(iv) (c)
(v) (b)