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Week 11	<ul style="list-style-type: none"> <li>Lecture 51 : Sewage disposal and treatment in India: Introduction</li> <li>Lecture 52 : Natural methods of sewage treatment</li> <li>Lecture 53 : Artificial sewage treatment Part 1: Primary treatment</li> <li>Lecture 54 : Artificial sewage treatment Part 2: Secondary treatment</li> <li>Lecture 55 : Artificial sewage treatment Part 3: Advanced methods</li> <li>Week 11 Lecture Material</li> <li>Quiz: Week 11 : Assignment 11</li> <li>Week 11 Feedback Form</li> </ul>
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# Week 11 : Assignment 11

The due date for submitting this assignment has passed. **Due on 2021-10-13, 23:59 IST.**

As per our records you have not submitted this assignment.

1) What is sewage sickness? 1 point

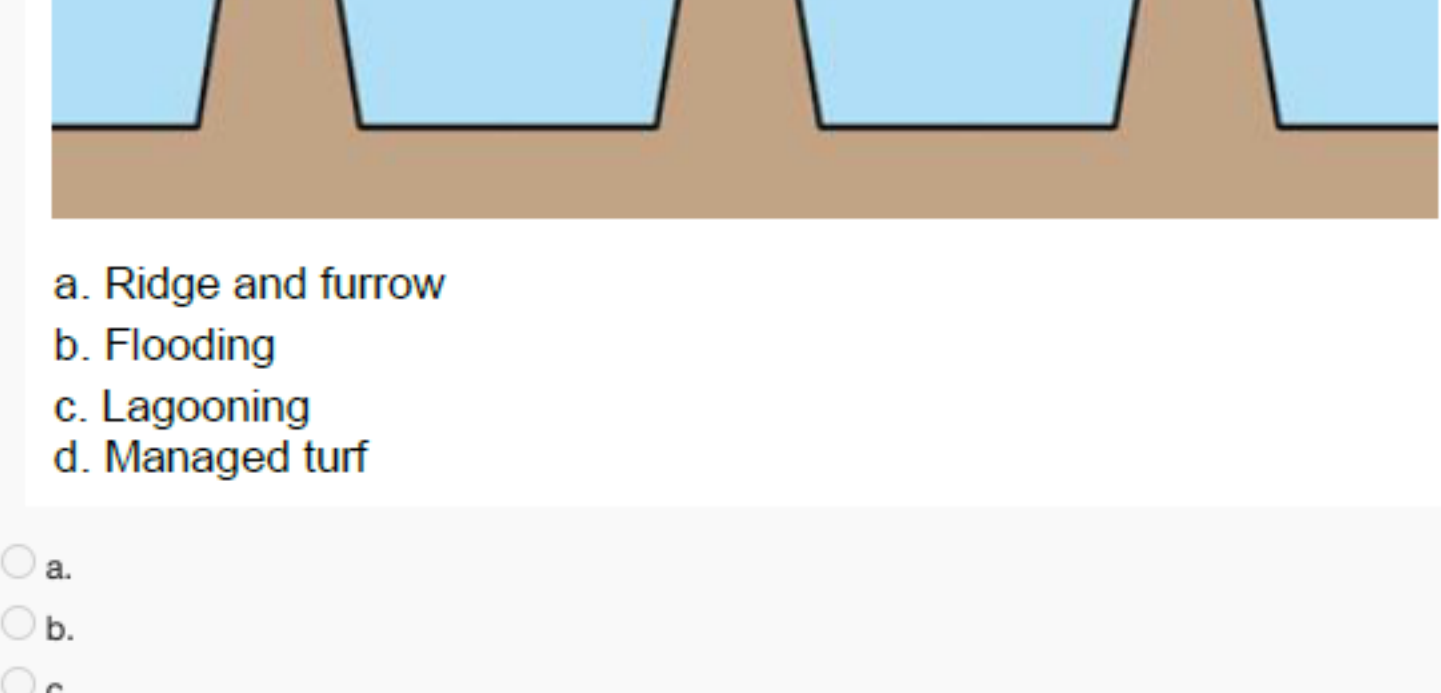
- a. Septic sewage being applied to soil having a high infiltration rate affecting underground water sources.
- b. Water getting unfit to use due to continuous disposal of sewage in water bodies.
- c. Health complications in sewage workers due to continuous exposure to unsafe conditions.
- d. Soil pores get clogged during sewage farming leading to anaerobic conditions.

- a.
- b.
- c.
- d.

No, the answer is incorrect. Score: 0

Accepted Answers: d.

2) Identify the type of natural method of sewage treatment. 1 point



- a. Ridge and furrow
- b. Flooding
- c. Lagooning
- d. Managed turf

- a.
- b.
- c.
- d.

No, the answer is incorrect. Score: 0

Accepted Answers: a.

3) The processes involved in the aerobic type of biological sewage treatment are: 1 point

- a. Hydrolysis, bio-reduction, bio-synthesis
- b. Glycolysis, hydrolysis, bio-reduction
- c. Hydrolysis, bio-oxidation, bio-synthesis
- d. Glycolysis, hydrolysis, bio-oxidation

- a.
- b.
- c.
- d.

No, the answer is incorrect. Score: 0

Accepted Answers: c.

4) Which statement/s is/are incorrect about the biological treatment process? 1.5 points

- A. Biological sewage treatment involves aerobic or anaerobic microorganisms to decompose the organic and inorganic particles of sewage.
- B. Biological sewage treatment involves Activated Sludge Process, Sequencing Batch Reactor, and Membrane Bio Reactor.
- C. Nitrogenous compounds are released during anaerobic process mostly.
- D. Bio-reduction of soluble organic matter results in the release of hydrogen sulphide, methane, water, ammonia, energy.
- E. Methane production is achieved by aerobic process.

- a. A, B, C, E
- b. B, C, D, E
- c. C, D, E
- d. A, C, E

- a.
- b.
- c.
- d.

No, the answer is incorrect. Score: 0

Accepted Answers: c.

5) The oxygen saturation level is minimum in: 1 point

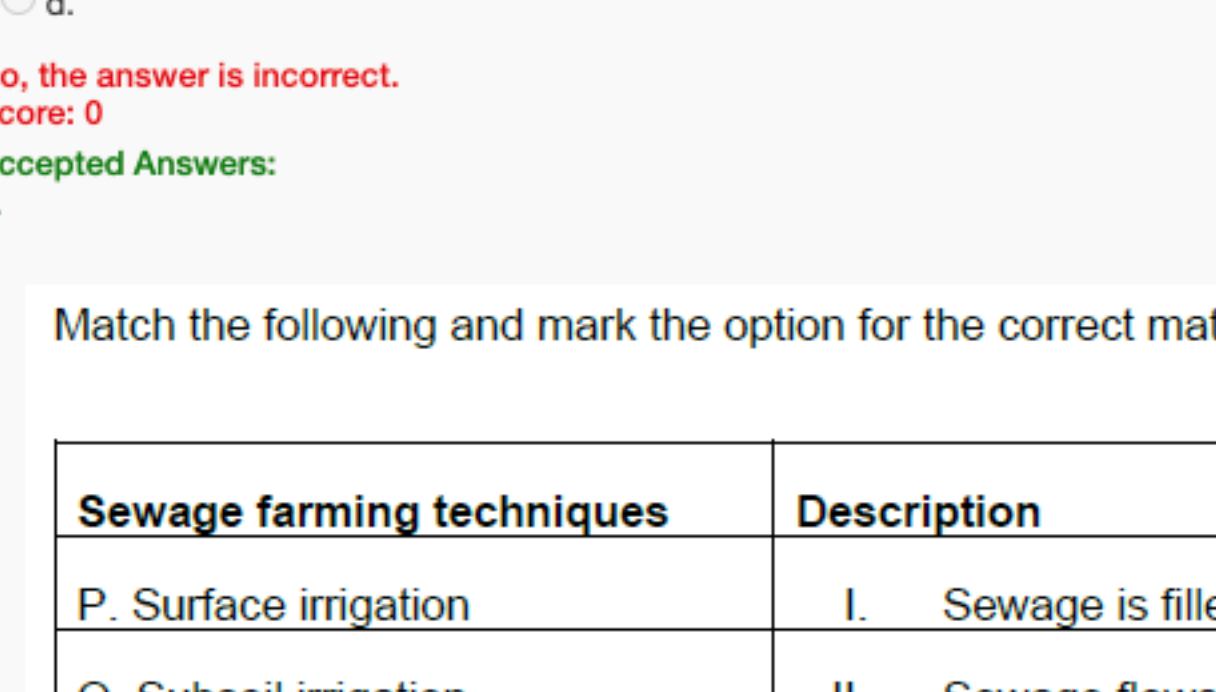
- a. Clear water zone
- b. Degradation zone
- c. Active decomposition zone
- d. Recovery zone

- a.
- b.
- c.
- d.

No, the answer is incorrect. Score: 0

Accepted Answers: c.

6) Identify the curves in dissolved oxygen versus time plot. 1 point



- a. A: Equilibrium DO concentration, B: Oxygen sag curve, C: BOD curve, D: Reoxygenation curve
- b. A: Oxygen sag curve, B: Equilibrium DO concentration, C: BOD curve, D: Deoxygenation curve
- c. A: Equilibrium DO concentration, B: Oxygen sag curve, C: BOD curve, D: Deoxygenation curve
- d. A: Equilibrium DO concentration, B: Oxygen sag curve, C: Reoxygenation curve, D: BOD curve

- a.
- b.
- c.
- d.

No, the answer is incorrect. Score: 0

Accepted Answers: d.

7) Match the following and mark the option for the correct match. 1.5 points

Sewage farming techniques	Description
P. Surface irrigation	I. Sewage is filled in ponds between the dykes
Q. Subsoil irrigation	II. Sewage flows over land from one drain to another
R. Flooding	III. Sewage is filled in impermeable ponds
S. Lagooning	IV. Sewage flows through porous pipes in the soil

- a. P-III; Q-IV; R-II; S-I
- b. P-II; Q-IV; R-I; S-III
- c. P-III; Q-IV; R-I; S-II
- d. P-II; Q-III; R-IV; S-I

- a.
- b.
- c.
- d.

No, the answer is incorrect. Score: 0

Accepted Answers: b.

8) Mark the correct statement/s for sewage treatment. 1.5 points

- A. Primary clarification involves the settlement of suspended solids.
- B. Secondary clarification involves removal of slimy organic substance through anaerobic process.
- C. Sludge digestion involves the digestion of organic and inorganic sludge from primary and secondary clarifiers.
- D. Grit removal process involves the removal of coarse inorganic particles.
- E. Screening process involves the removal of large-sized floating material through gratings.

- a. C
- b. B, D
- c. A, B, C
- d. A, D, E

- a.
- b.
- c.
- d.

No, the answer is incorrect. Score: 0

Accepted Answers: d.

9) During sewage treatment, grit is removed from sewage by the process of: 1 point

- a. Differential sedimentation
- b. Precipitation
- c. Stabilisation
- d. Flocculation

- a.
- b.
- c.
- d.

No, the answer is incorrect. Score: 0

Accepted Answers: a.

10) During sewage treatment, the coarse suspended solid particles that cannot be removed by screening, skimming or grit removal process are removed by: 1 point

- a. Secondary clarification
- b. Chemical sedimentation
- c. Plain sedimentation
- d. Activated sludge process

- a.
- b.
- c.
- d.

No, the answer is incorrect. Score: 0

Accepted Answers: c.

11) The dosage of coagulant required for the chemical sedimentation process depends on: 1 point

- A. pH of sewage
- B. BOD of sewage
- C. Nature of coagulant
- D. Flocculation time
- E. Size of the tank

- a. E
- b. A, B
- c. C, D, E
- d. A, B, C, D

- a.
- b.
- c.
- d.

No, the answer is incorrect. Score: 0

Accepted Answers: d.

12) Self-purification of water bodies involve: 1 point

- A. Sedimentation
- B. Aeration
- C. Reduction
- D. Decomposition

- a. B, C, D
- b. A, B, C
- c. A, C, D
- d. A, B, C, D,

- a.
- b.
- c.
- d.

No, the answer is incorrect. Score: 0

Accepted Answers: d.

13) Match the following and mark the option for the correct match. 1 point

Term	Illustration
P. Trickling filter	I.
Q. Chemical sedimentation tank	II.
R. Plain sedimentation tank	III.

- a. P-III; Q-II; R-I
- b. P-I; Q-II; R-III
- c. P-III; Q-I; R-II
- d. P-I; Q-III; R-II

- a.
- b.
- c.
- d.

No, the answer is incorrect. Score: 0

Accepted Answers: a.

14) Which statement/s are incorrect regarding Sequencing Batch Reactor (SBR)? 1.5 points

- A. It combines all sewage treatment steps into one unit.
- B. It involves four phases of treatment, i.e., fill, react, decant and idle.
- C. During the react phase, BOD is removed through the oxidation process.
- D. It is effective for varying sewage flow patterns.

- a. A, D
- b. B, C
- c. A, B, C
- d. C, D

- a.
- b.
- c.
- d.

No, the answer is incorrect. Score: 0

Accepted Answers: b.

15) Attached growth systems for biological treatment of sewage include: 1 point

- a. Aerated lagoons
- b. Moving bed biofilm reactors
- c. Stabilisation ponds
- d. Contact beds

- a.
- b.
- c.
- d.

No, the answer is incorrect. Score: 0

Accepted Answers: d.

16) Match the following and mark the option for the correct match. 1 point

Term	Description
P. Aerobic pond	I. Methane formation
Q. Anaerobic pond	II. Shallow depth
R. Facultative pond	III. Both aerobic and anaerobic processes

- a. P-III; Q-II; R-I
- b. P-I; Q-II; R-III
- c. P-II; Q-I; R-III
- d. P-II; Q-III; R-I

- a.
- b.
- c.
- d.

No, the answer is incorrect. Score: 0

Accepted Answers: c.

17) \_\_\_\_\_ integrate a semi-permeable membrane with a biological process. 1 point

- a. Membrane bioreactors
- b. Trickling filter
- c. Sequencing Batch Reactor
- d. Secondary clarifier

- a.
- b.
- c.
- d.

No, the answer is incorrect. Score: 0

Accepted Answers: a.

18) \_\_\_\_\_ is a process in which particles deposited on the semi-permeable membrane of membrane bioreactor surface tend to diffuse back to the reactor. 1 point

- a. Reverse osmosis
- b. Eutrophication
- c. Flow equalisation
- d. Intermittent permeation

- a.
- b.
- c.
- d.

No, the answer is incorrect. Score: 0

Accepted Answers: d.