

[164/A-25]

SEAT No. _____



No. of Printed Pages : 03

SARDAR PATEL UNIVERSITY

B.Sc. Semester – VI Examination: April 2022

Subject: Microbiology

US06CMIC23: Agricultural and Environmental Microbiology



Date: 06-04-2022, Wednesday

Time: 03:00 – 05:00 PM

Total marks: (70)

Instructions: (1) It is compulsory to attempt all four questions.

(2) Marks of each question are indicated on the right.

Q. 1. Answer the following multiple choice questions:

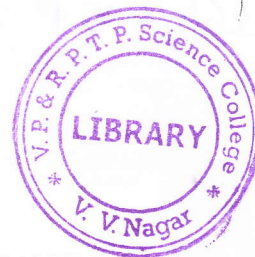
(10)

- Which of the following compound inhibits Nitrogenase activity?
(a) Oxygen (b) High concentration of ATP
(c) Nitrogen (d) Both (a) and (b)
- Which of the following organism form symbiotic association with non-leguminous plants like woody shrubs and small trees?
(a) Frankia (b) Azolla
(c) Enterobacter species (d) Both (b) and (c)
- Spore dust containing *B popilliae* and *B lentimorbus* has been marketed under the trade name:
(a) Thuricide (b) Doom
(c) Milky-mix (d) None of these all
- Necrosis in plants is caused by _____
(a) Hyperplasia (b) Fungal activity
(c) Parasitic activity (d) Albinism
- Which of the following is example of a phytotoxin?
(a) Lycomarasmin (b) Victorin
(c) Victoxinine (d) None of these all
- Biodegradation through manipulation of genes is known as
(a) Biosorption (b) Biostimulation
(c) Bioreclamation (d) Bioaugmentation
- Landfarming is a technique for the bioremediation of
(a) Heavy metals (b) Polychlorobiphenyls
(c) Hydrocarbon contaminated soils (d) Chlorinated solvents
- Which of the following is example of a biodegradable compound?
(a) Prophan (b) Methoxychlor
(c) DDT (d) Both (a) and (b)

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(P.T.O)

9. Which of the following is not a non-renewable energy source?
(a) Wind (b) Coal
(c) Natural gas (d) Mineral oil
10. Biogas production is inhibited by
(a) Ammonia (b) SO_4^{2-}
(c) Antibiotics (d) All of these



Q. 2 (A) Fill in the blanks: (04)

1. _____ is a technique of seed-dressing with bacteria.
2. _____ is the abnormal increase in the size of a plant organ.
3. _____ compounds do not easily undergo biodegradation and persist in the environment for a long period.
4. _____ are known as fossil fuels.

(B) Write True or False: (04)

1. *Rhizobium* forms a resting structure called cyst.
2. A sclerotium is a compact, often hard mass of dormant fungus mycelium.
3. Alicyclic compounds can't be degraded by cometabolism.
4. *Pseudomonas aeruginosa* can be employed in mining low grade uranium ore.

Q. 3 Answer in short: (Attempt any ten) (20)

1. What are unique characteristics of *Bradyrhizobium* species?
2. Give examples of commonly used pelleting agents.
3. Write any four advantages of biofertilizers.
4. What is necrosis?
5. What is protopectin?
6. Explain the term: Elicitor
7. Define xenobiotic compounds. Give any two examples.
8. What is biomagnifications?
9. Give names of any two biodegradable polymers and producer organisms.
10. Give two useful features of biofuels.
11. Enlist the factors affecting biogas yield.
12. What is indirect bioleaching?

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Q. 4. Answer the following questions: (Attempt any four)

(32)

1. Discuss structure and function of nitrogenase.
2. Enlist types of microbial insecticides. Discuss viral insecticides.
3. Describe symptoms resulting from internal disorders in the host plant.
4. Enlist pre-existing biochemical defence mechanisms in plants. Discuss any two.
5. Discuss bioremediation of petroleum hydrocarbons.
6. Write a note on: (a) MEOR (b) GEMs in bioremediation
7. What is biogas? Describe low technology digesters and draw its schematic diagram.
8. What is Green house effect? Discuss measures to control green house effect.

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