

SEAT NO. \_\_\_\_\_



No. of printed pages: 03

[30]

SARDAR PATEL UNIVERSITY  
B.Sc. SEMESTER-VI EXAMINATION 2022

Saturday, 25<sup>th</sup> June 2022  
10 :00 A.M. to 12.00 P.M.

**SUBJECT: MICROBIOLOGY US06CMIC23  
AGRICULTURE & ENVIRONMENTAL MICROBIOLOGY**

**Total Marks: 70**

Q-1 Answer all multiple choice questions by choosing the most appropriate one.

(10)

1. Find phosphate solubilizing microorganism from the following:  
a) *Bacillus megaterium*  
b) *Pseudomonas striata*  
c) *Bacillus polymyxa*  
d) All of these
2. \_\_\_\_\_ enzyme system catalyzes the reduction of molecular nitrogen to ammonia.  
a) Nitrogenase  
b) Denitrogenase  
c) Denitrogenase synthase  
d) Nitrogenasereductase
3. Associate symbiosis is reported in case of \_\_\_\_\_.  
a) *Azotobacter*  
b) *Azolla*  
c) *Azospirillum*  
d) *Pseudomonas*
4. Wild-fire toxin is a \_\_\_\_\_.  
a) Fungal toxin  
b) Viral toxin  
c) Bacterial toxin  
d) None of these
5. Phytotoxins are \_\_\_\_\_.  
a) Microbial toxins  
b) Non-specific toxins  
c) Toxic to plants  
d) All of these
6. The term \_\_\_\_\_ is used for the addition of specific microorganisms to the polluted location for the bioremediation.

- a) biosorption
- c) bioaugmentation

- b) biomagnification
- d) biotransformation

7. The term \_\_\_\_\_ is used for incomplete biodegradation of organic compounds.

- a) biosorption
- c) biotransformation

- b) biomagnification
- d) xenobiotic

8. \_\_\_\_\_ has the highest global warming potential among all greenhouse gases.

- a) CFC
- c) Carbon dioxide

- b) Nitrous oxide
- d) ozone

9. The source of CFCs in the environment include \_\_\_\_\_.

- a) Refrigerants
- c) Solvents

- b) Foam packaging
- d) All of these

10. \_\_\_\_\_ acts as the source of ozone in troposphere.

- a) Respiration
- c) Foam packaging

- b) Photochemical reactions
- d) Refrigerants

Q-2 (a) Fill in **all** the blanks: (04)

1. The first rhizobial bio-fertilizer produced in the year 1895 was \_\_\_\_\_. (MycoRhiz/ Nitragin)
2. Lycomarasmine is a \_\_\_\_\_. (phytotoxin/bacterial toxin)
3. \_\_\_\_\_ are certain compounds that do not easily undergo biodegradation. (Bioplastics/ Recalcitrant)
4. \_\_\_\_\_ is used for the bioleaching of gold (*Aspergillus oryzae*/*Thiobacillus thiooxidans*)

(b) Mark **True or False**. Mention the question number carefully as given below: (04)

1. *Azotobacter* spp is used as a nitrogen fixing bio-fertilizer.
2. Dead areas in the bark, cortex of the stem or leaf are called cankers and they have definite margin.
3. The term xenobiotic is used for incomplete biodegradation of organic compounds.
4. Solar electricity is a nonrenewable energy source.

Q-3 Answer **any 10** in brief. (20)

1. What is bacterization technique?
2. Write any two advantages of microbial insecticides over chemical insecticides.
3. Write main two limitations of bio-fertilizers.
4. What is maceration?
5. Enlist the pre-existing structural defense in host plants.
6. Enlist two important characteristics of plant viruses
7. Write disadvantages of *in situ* bioremediation
8. Name the microbe used for MEOR
9. Name the microbe used for the production of bio-plastics.
10. What is biosorption?
11. Enlist any two measures to control greenhouse effect.
12. Name any two renewable energy sources.

Q-4 Describe **any 4** of the following: (8 marks each)

1. *Bacillus thuringiensis* as an insecticide.
  2. An overview of microbial fertilizers.
  3. Microbial toxins as weapons of plant pathogens.
  4. Post infection biochemical defense in plant hosts..
  5. The pollution problem created by ABS and its solution.
  6. The pollution problems related with chlorinated hydrocarbons and their remedy.
  7. Bioleaching: The microbes involved and the methods.
  8. The microbiology of biogas production.
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