

(A-3)

SEAT No. \_\_\_\_\_

No. of Printed Pages: 02

(A-3)

SARDAR PATEL UNIVERSITY

M. Sc. -Integrated Biotechnology – Ninth Semester Examination

Tuesday, 19<sup>th</sup> March 2019

Time: 10:00 am to 01:00 pm

PS09CIGIB1: Biofertilizers and Biopesticides

Total Marks – 70

Q.1 Mark the right answer of following questions.

[08]

1. \_\_\_\_\_ diazotroph produces cyst.  
a. *Azospirillum spp.*      b. *Azotobacter spp.*      c. *Acetobacter spp.*      d. *Azolla spp.*
2. Which enzyme cleave C-P bond of organophosphates?  
a. Phosphomonoesterase      b. Phytase      c. Phostonataase      d. Phosphate dehydrogenase
3. \_\_\_\_\_ process of symbiotic N<sub>2</sub> fixation is carried out by betain.  
a. Curling of root hair      c. Binding of microsymbiont  
b. Infection of root hair      d. Decides host specificity
4. \_\_\_\_\_ is consider as basic physiological unit of *Anabaena-Azolla* symbiosis.  
a. Dorsal lobe      c. Sporocarps  
b. Heterocyst      d. Trichome
5. \_\_\_\_\_ pathway is not present in *Bacillus popilliae*.  
a. TCA cycle      b. EMP      c. PPP      d. Glycolysis
6. BT cotton is NOT: \_\_\_\_\_  
a. Resistant to all pest      c. A gene expressing system  
b. Insect resistant      d. A genetically modified plant
7. Xanthan gum is an example of \_\_\_\_\_.  
a. Binder      b. Light blocker      c. Thickener      d. Surfactant
8. Neem powder is an example of \_\_\_\_\_ type of pesticide.  
a. Bacteria      b. Biochemical      c. PIP      d. Fungal      e. Viral

Q.2 Answer the following questions. (ANY SEVEN OUT OF NINE)

[14]

1. Describe objectives of integrated pest management.
2. Explain contribution of microbes to increase soil fertility.
3. Discuss various techniques of biopesticides applications.
4. Write examples of fermentation media used for isolation of plant growth promoting bacteria.
5. Write advantages of biopesticides.
6. Explain three major classes of biopesticides.
7. Write various applications of *Azolla*.
8. Differentiate solid state and submerged fermentation processes.
9. What are the advantages of biofertilizers?

(1)

(P.T.O.)

- Q.3 A. Write a note on nitrogenase structure and mechanism. [06]  
B. Explain nitrogen fixation in *Cyanobacteria*. [06]  
**OR**  
B. Give a detail account on symbiotic nitrogen fixation of *Rhizobium spp.* [06]
- Q.4 A. Write a note on mass production of biofertilizer. [06]  
B. Outline process of *Anabaena-Azolla* symbiosis. [06]  
**OR**  
B. Discuss different plant growth promoting characteristics of bacteria. [06]
- Q.5 A. Explain mode of action and toxins of *Bacillus thuringiensis* in detail. [06]  
B. Write advantages and mode of action of *Bacillus popilliae*. [06]  
**OR**  
B. Explain role of *Pseudomonas* and *Nematodes* as biopesticides. [06]
- Q.6 A. Write a note on different liquid formulations of biopesticides. [06]  
B. Give an account on application processes of biopesticides for the control of microbial diseases. [06]  
**OR**  
B. Illustrate various solid formulation processes of biopesticides. [06]

-----x-----