

PSG COLLEGE OF ARTS & SCIENCE  
(AUTONOMOUS)

BSc DEGREE EXAMINATION DECEMBER 2023  
(Fourth Semester)

Branch - MICROBIOLOGY

SOIL & AGRICULTURAL MICROBIOLOGY

Time: Three Hours

Maximum: 50 Marks

SECTION-A (5 Marks)

Answer ALL questions

ALL questions carry EQUAL marks (5 x 1 = 5)

1. Which of the Following Nematodes does not pass through the lungs during its life cycle?  
(i) *Ancylostoma duodenale* (ii) *Necator americanus*  
(iii) *Capillaria philipinensis* (iv) *Ascaris lumbricoides*
2. Which of the following is a nitrogen fixer in the root nodules of alnus?  
(i) *Clostridium* (ii) *Bradyrhizobium*  
(iii) *Azorhizobium* (iv) *Frankia*
3. Which enzymes are crucial in nitrogen fixation?  
(i) Nitrogenase and hydrogenase (ii) Nitrogenase and hexokinase  
(iii) Nitrogenase and peptidase (iv) Nitrogenase and hydrolyase
4. Mycorrhizae are the example of  
(i) Fungistasis (ii) Amensalism  
(iii) Antibiosis (iv) Mutualism
5. Which of the following is a pair of biofertilizers?  
(i) *Salmonella* and *E.Coli* (ii) *Nostac* and *legume*  
(iii) *Rhizobium* and *Salmonella* (iv) *Azolla* and BGA

SECTION - B (15 Marks)

Answer ALL Questions

ALL Questions Carry EQUAL Marks (5 x 3 = 15)

- 6 a. Explain Protozoans in soil.  
OR  
b. Define Zymogenous microflora.
- 7 a. Define Commensalism.  
OR  
b. Illustrate Mutualism.
- 8 a. Explain Carbon cycle.  
OR  
b. Explain Phosphorous cycle.
- 9 a. Demonstrate mass production of Biofertilizer.  
OR  
b. Explain Blue green algae.
- 10 a. Assess various Protozoans and nematodes used as insecticides.  
OR  
b. Explain symbiotic association between microbes and insects.

Cont...

**SECTION -C (30 Marks)**

Answer **ALL** questions

**ALL** questions carry **EQUAL** Marks

(5 x 6 = 30)

- 11 a. Define significance in soil transformation.  
OR  
b. Explain Allochthonous, Autochthonous and Zymogenous microflora.
- 12 a. Illustrate the positive Interaction.  
OR  
b. Discuss the Negative Interaction.
- 13 a. Explain Sulfur Cycle.  
OR  
b. Discuss Phosphorous Cycle.
- 14 a. Define Non-Symbiotic Nitrogen fixers.  
OR  
b. Explain Advantages and Disadvantages of Biofertilizers.
- 15 a. Determine Various Protozons and Nematodes used as Inseticides.  
OR  
b. Explain advantages of Microbial Insecticides.

Z-Z-Z

END