

PSG COLLEGE OF ARTS & SCIENCE
(AUTONOMOUS)

BSc DEGREE EXAMINATION MAY 2022
(Fourth Semester)

Branch – MICROBIOLOGY

SOIL AND AGRICULTURAL MICROBIOLOGY

Time: Three Hours

Maximum: 75 Marks

SECTION-A (10 Marks)

Answer ALL questions

ALL questions carry EQUAL marks (10 x 1 = 10)

- 1 The soil organisms utilize refractory humic substances and exhibit good growth is
(i) Allocthonous (ii) Zymogenous
(iii) Actinomyces (iv) Autocthou
- 2 In soil the protozoan found upto
(i) 10 cm depth (ii) 15 cm depth
(iii) 20 cm depth (iv) 5 cm depth
- 3 Proto cooperation is a type of _____ interaction
(i) Neutralism (ii) Positive
(iii) Negative (iv) Competitive
- 4 Lichen is an example of _____
(i) Parasitism (ii) Commensalism
(iii) Neutralism (iv) Symbiogism
- 5 Which of the following is phosphate solubilizing organism?
(i) B.megaterium (ii) Cl.pasterianum
(iii) Spirillum (iv) Acetobacter
- 6 Methane is a substrate for
(i) Beggiatoc (ii) Methylotrophs
(iii) Chlorobium (iv) Methanagens
- 7 Which of the following is non symbiotic nitrogen fixer?
(i) Rhizobium (ii) Bradyrhizobium
(iii) Anabaena (iv) Frankia
- 8 The nitrogenase enzyme is essential for
(i) Nitrogen fixation (ii) Nitrification
(iii) Ammonification (iv) Denirification
- 9 Which of the pathogenic fungi kill the mosquito larvae?
(i) Trichoderma (ii) Caelomomyces
(iii) Metarrhizum (iv) Bhavaria
- 10 Silver leaf disease of plum controlled with the biocontrol agent
(i) Trichoderma viride (ii) Trichodema hamatum
(iii) Round worm (iv) Bhavaria

Cont...

SECTION - B (35 Marks)Answer **ALL** questions**ALL** questions carry **EQUAL** Marks

(5 x 7 = 35)

- 11 a What is microhabitat? Why it's important in Soil?
OR
b List out the roles of soil microbes in improving soil fertility.
- 12 a Clarify how parasitism differ from predatism with suitable example.
OR
b What is Syntropism? Biofilm is an example for syntropism justify.
- 13 a Highlights the importance of mineral cycling process.
OR
b Explain about nitrogen cycle and their importance.
- 14 a Comments on leghaemoglobin and its importance.
OR
b Explain about the nitrogenase structure and functions.
- 15 a Narrate the type of interaction occur between Ambrosia beetle with microbes.
OR
b What are biocontrol agents? In which mechanisms they control plant parasites?

SECTION -C (30 Marks)Answer any **THREE** questions**ALL** questions carry **EQUAL** Marks

(3 x 10 = 30)

- 16 Discuss about the factors effecting soil microbes and importance of soil microbes.
- 17 Explain the types of interaction occurred within a population of soil microbes with examples.
- 18 Summarize the process of carbon transformation with the food webs.
- 19 Concise the steps involved in mass cultivation of Azollae and their uses.
- 20 How can genetic engineering are used to enhance B.thuringiensis and BT toxin in pest control.

Z-Z-Z

END