

ANDHRA CHRISTIAN COLLEGE, GUNTUR

DEPARTMENT OF BOTANY

CERTIFICATE COURSE IN BIOFERTILIZERS 2021 – 22

Total hours of Teaching 30 hrs @ 1 per day

Syllabus:

Unit I:

Definition, History and Concept, Scope and importance of biofertilizers, Types of biofertilizers, Nitrogen fixation mechanism, Benefits of biofertilizers. 6hrs

Unit II:

Characteristic features of bio-fertilizers; Bacterial biofertilizers - Rhizobium, Azotobacter, Azospirillum; Phosphate solubilizers; Cyanobacterial biofertilizers – Anabaena, Nostoc; Algal biofertilizers – Azolla; Fungal biofertilizers – AM and ectomycorrhiza 10hrs

Unit III:

Production Technology of biofertilizers – Isolation of Azospirillum from roots, Mass production of biofertilizers, Production of BGA in rice crop. 6hrs

Unit IV:

Applications of biofertilizers to crops: Seed treatment, seedling root dip, soil treatment, Use of VAM biofertilizer, blue green algae, and azolla, Precautions to be taken while using biofertilizers. 8hrs



**Head of the Department of Botany
ANDHRA CHRISTIAN COLLEGE
GUNTUR**



**PRINCIPAL
ANDHRA CHRISTIAN COLLEGE
(Day, Evening & P.G)
GUNTUR**

K. Joel Paul Samuel
Section - IV
Class No. 912

30
30

ANDHRA CHRISTIAN COLLEGE, GUNTUR

Department of Botany – Biofertilizers certificate course

Question Paper- 2021 - 22

Each question carries **two** marks.

Max.marks : 30

1. Biofertilizers are the living organisms which

- a) Enrich soil with nutrients
- b) maximize the ecological benefits
- c) minimize the environmental hazards
- d) all the above

2. The following organism is a nitrogen fixer in rice fields.

- a) Frankia
- b) Oscillatoria
- c) Azospirillum
- d) Rhizobium

3. Which of the following is not a biofertilizer?

- a) Mycorrhiza
- b) Rhizobium
- c) Agrobacterium
- d) Nostoc

4. Which of the following is a pair of biofertilizers?

- a) Salmonella and E. coli
- b) Rhizobium and grasses
- c) Nostoc and legume
- d) Azolla and BGA

5. Conversion of nitrates to nitrogen is called

- a) Ammonification
- b) Nitrification
- c) Nitrogen fixation
- d) Denitrification

6. Symbiotic Nitrogen fixing Cyanobacteria are not present in

- a) Azolla
- b) Gnetum
- c) Anthoceros
- d) Cycas

7. The root pockets of the following contain Anabaena

- a) Marsilea
- b) Salvinia
- c) Pistia
- d) Azolla

8. Which of the following is a non-symbiotic biofertilizer?

a) VAM b) Azotobacter c) Anabaena d) Rhizobium

9. Root nodule of leguminous plant contain

a) Nitrogenase b) leghaemoglobin c) both d) none

10. Mycorrhiza is a symbiotic association between

a) fungus and algae b) fungus and plant c) fungus and fungus d) fungus and animal

11. Which of the following is a fern biofertilizer ?

a) Salvinia b) Azolla c) Pteris d) Marsilea

10. Which of the following is an endomycorrhiza?

a) Rhizobium b) Agaricus c) Glomus d) Nostoc

11. Phosphate solubilizing bacteria

a) Azotobacter b) Pseudomonas putida c) Fusarium d) none of the above

13. The bacteria that are used as biofertilizers for non-leguminous crops are

a) Azospirillum b) Azotobacter c) both the above d) none of the above

15) Which of these biofertilizers provide phosphorus to the plants?

a) Oscillatoria b) Rhizobium c) Nostoc d) Mycorrhiza