

**B.Sc. Semester III (Honours) Examination, 2018-19**

**BOTANY**

**Course ID : 31315**

**Course Code : SHBOT-305SEC-1(T)**

**Attempt any one Alternative.**

**Alternative-I**

**Course Title: Biofertilizer**

**Time: 1 Hour**

**Full Marks: 40**

*The figures in the margin indicate full marks.*

*Candidates are required to give their answers in their own words  
as far as practicable.*

Answer any forty from the following questions:

1×40=40

1. Select the odd one with reference to biofertilizers  
(a) Bacteria (b) Fungi  
(c) Cyanobacteria (d) Viruses
2. Which of the following microbe is most active N<sub>2</sub>-fixer in rice field in India?  
(a) *Rhizobium* (b) *Rhodospirillum*  
(c) *Frankia* (d) *Aulosira*
3. Biofertilizers  
(a) increase dependence on chemical fertilizers.  
(b) are organisms that enrich the nutrient quality of soil.  
(c) include potash, phosphatic and N<sub>2</sub>-organic.  
(d) are used regularly in the fields to deplete soil nutrients.
4. The paddy fields \_\_\_\_\_ serve as an important biofertilizers.  
(a) *Rhizobium* (b) BGA  
(c) *Glomus* (d) *Frankia*
5. Which of the following is not a symbiotic N<sub>2</sub>-fixing bacterium?  
(a) *Clostridium* (b) *Rhizobium*  
(c) *Frankia* (d) *Anabaena*
6. A N<sub>2</sub>-fixing microbe associated with *Azolla* in rice fields is  
(a) *Frankia* (b) *Tolypothrix*  
(c) *Spirulina* (d) *Anabaena*
7. Which one of the following microbes forms symbiotic association with plants and helps them in their nutrition?  
(a) *Glomus* (b) *Trichoderma*  
(c) *Azotobacter* (d) *Aspergillus*
8. Which one of the following is not a biofertilizer?  
(a) Mycorrhiza (b) *Agrobacterium*  
(c) *Rhizobium* (d) *Nostoc*

9. An organism used as a biofertilizer for raising soyabean crop is  
(a) *Nostoc* (b) *Azotobacter*  
(c) *Azospirillum* (d) *Rhizobium*
10. An example of endomycorrhiza is  
(a) *Nostoc* (b) *Glomus*  
(c) *Agaricus* (d) *Rhizobium*
11. Which of the following material used as carrier to make carrier based inoculants of *Rhizobium*?  
(a) Charcoal (b) Paddy straw  
(c) Water (d)  $\text{CaCO}_3$
12. YEM medium is used to grow  
(a) *Nostoc* (b) *Agrobacterium*  
(c) *Rhizobium* (d) *Clostridium*
13. Associative  $\text{N}_2$ -fixers differ from symbiotic  $\text{N}_2$ -fixers  
(a) No gene interaction with plant. (b) No morphogenetic changes occur.  
(c) Both (a) and (b) is correct (d) Only (b) is correct
14. VAM is  
(a) Vesicular-arbuscular mycorrhiza (b) Variable adenine mutation  
(c) Variable associative mutualism (d) Vitamins and minerals
15.  $\text{N}_2$ -fixation is  
(a) Nitrogen to ammonia (b) Nitrogen to nitrates  
(c) Nitrogen to amino acid (d) Both (a) and (b)
16. Green manure plants belong to  
(a) Compositae (b) Solanaceae  
(c) Poaceae (d) Leguminosae
17. Aquatic fern which is an excellent biofertilizer?  
(a) *Salvinia* (b) *Azolla*  
(c) *Marsilea* (d) *Pteridium*
18. Farmers have reported 50% higher yield of rice by using biofertilizer  
(a) *Azolla pinnata* (b) Legume *Rhizobium symbiosis*  
(c) Cyanobacteria (d) Mycorrhiza
19. Which one is green manure/biofertilizer?  
(a) *Sesbania* (b) Maize  
(c) Rice (d) Oat
20. Which are used as green manure?  
(a) *Melilotus parvirflora* (b) *Lens esculenta*  
(c) *Crotalaria juncea* (d) All of the above

21. An organism which improves phosphorus uptake is  
(a) Actinomycete fungi (b) Rhizobium  
(c) Azospirillum (d) Azotobacter
22. Vermicompost is biofertilizer rich in  
(a) Phosphorus (b) Calcium  
(c) Nitrogen (d) All of these
23. pH of vermiculture is kept at  
(a) Neutral (b) Alkaline  
(c) Acidic (d) Highly alkaline
24. Leguminous plants are able to fix atmospheric  $N_2$  through symbiotic activity. Which is not correct?  
(a) Leghaemoglobin scavenges  $O_2$   
(b) Nitrogenase is insensitive to  $O_2$   
(c) Nodules act as sites for  $N_2$ -fixation  
(d) Nitrogenase catalyses the conversion of  $N_2$  to  $NH_3$
25. They help in increasing soil fertility  
(a) Pseudomonas and cereals (b) Bacillus and Penicillium  
(c) Salvinia and Marsilea (d) Nostoc and legumes
26. Which bacteria secrete phosphatase?  
(a) Frankia (b) Clostridium  
(c) Pseudomonas (d) Azotobacter
27. Frankia induced nodulation occur  
(a) Tephrosia purpurea (b) Casuarina  
(c) Sida cordifolia (d) Arachis hypogea
28. The cyanobacteria are isolated on  
(a) Fogg's medium (b) YEM  
(c) MS medium (d) Nutrient agar medium
29. Okon's medium is used for mass cultivation of  
(a) Azospirillum (b) Rhizobium  
(c) Azotobacter (d) Anabaena
30. CRYEMA test is used for identification of  
(a) Azospirillum (b) Anabaena  
(c) Rhizobium (d) Clostridium
31. Which one is used for carrier base inoculant preparation of Azospirillum?  
(a) FYM + charcoal (b)  $MgSO_4$   
(c)  $CaCO_3$  (d) Water

32. *Rhizobium* is a
- (a) Gram positive and aerobic (b) Gram negative and anaerobic  
(c) Gram negative and aerobic (d) Gram positive and anaerobic
33. Name one slow growing *Rhizobium*
- (a) *Bradyrhizobium* (b) *Azorhizobium*  
(c) *Sinorhizobium* (d) *Mesorhizobium*
34. Name one BGA forms symbiotic association with *Azolla*
- (a) *Nostoc punctiforme* (b) *Anabaena azollae*  
(c) *Scytonema hofmanni* (d) *Brachytrichia balani*
35. Some of the ectomycorrhizal fungi produce
- (a) GA (b) ABA  
(c) IAA (d) BAP
- Which possibly involved in longevity of roots?
36. Vermicomposting is the operation of composting process of organic materials by involving
- (a) earthworms (b) snake  
(c) snail (d) insect
37. During vermicomposting the pit is covered by layer of
- (a) Sandy soil (b) Loamy soil  
(c) Clay soil (d) Gravel and rocks
38. Which bacterium is isolated from the stem nodule of *sesbania rostrate*?
- (a) *Acetobacter diazotrophicus* (b) *Rhizobium loti*  
(c) *Azorhizobium caulinodans* (d) *Azospirillum brasilense*
39. Name one N<sub>2</sub>-fixing bacterium associated with sugarcane crop
- (a) *Acetobacter diazotrophicus* (b) *Bradyrhizobium japonicum*  
(c) *Azotobacter vinelandii* (d) *Azospirillum brasilense*
40. Which of the following is the main carbohydrate material present in vesicle and hyphal cells?
- (a) Pectin (b) Clutin  
(c) Cellulose (d) Chondroitin
41. VAM belongs to family
- (a) Endogonaceae (b) Mortierellaceae  
(c) Entomophthoraceae (d) None of these

42. Rhicadhesin is  
 (a) Ca binding protein (b) K binding protein  
 (c) Mo binding protein (d) Mn binding protein
43. The enzyme involved in N<sub>2</sub>-fixation is  
 (a) Aldolase (b) Carboxylase  
 (c) Fumarase (d) Nitrogenase
44. Which bacterium fixes N<sub>2</sub> in freeliving condition?  
 (a) *Klebsiella* (b) *Rhizobium*  
 (c) *Azospirillum* (d) *Azorhizobium*
45. Which fungus forms association with plant roots?  
 (a) *Glomus* (b) *Mucor*  
 (c) *Ascobolus* (d) *Lycoperdon*

### Alternative-II

#### Course Title: Herbal Technology

**Time: 1 Hour**

**Full Marks: 40**

*Candidates are required to give their answers in their own words  
 as far as practicable.*

Answer all the questions:

1×40=40

- Who proved the importance of 'Flora in the world'?  
 (a) Sushruta (b) Charaka  
 (c) Aristotle (d) Mendel
- What form of herbal medicine is widely practiced in India?  
 (a) Western (b) Greek  
 (c) Ayurvedic (d) Homoeopathy
- Which part of the ginger plant is used in health and medicinal product?  
 (a) Underground stem (b) Seed  
 (c) Flower (d) Root
- What does extraction of a plant's volatile liquid materials yield?  
 (a) Fat (b) Essential oils  
 (c) Powder (d) None of these
- Which Veda deals with various diseases and their treatment?  
 (a) Rig Veda (b) Yajur Veda  
 (c) Atharva Veda (d) All of these
- Who did various surgical treatment by the help of natural herbs?  
 (a) Charaka (b) Sushruta  
 (c) Kabir (d) None of these

7. Organoleptic Evaluation means
  - (a) Morphological Evaluation
  - (b) Anatomical Evaluation
  - (c) Biochemical Evaluation
  - (d) Geographical
8. Drug Adulteration means
  - (a) Chemical analysis of drug
  - (b) Quality analysis of drug
  - (c) Practice of substituting original drug
  - (d) None of these
9. One of the condition of 'Drug Adulteration' is
  - (a) Sophistication
  - (b) Evaporation
  - (c) Sublimation
  - (d) None of these
10. Tulsi belongs to the family
  - (a) Acanthaceae
  - (b) Lamiaceae
  - (c) Verbenaceae
  - (d) Solanaceae
11. Useful part of Ashoka is
  - (a) Leaf
  - (b) Stem bark
  - (c) Fruit
  - (d) Flower
12. Which plant is used as an uterine tonic?
  - (a) Ginger
  - (b) Ashoka
  - (c) Tulsi
  - (d) Neem
13. In Physical Evaluation of drug following content can be measured
  - (a) Detection of alkaloid
  - (b) Detection of moisture content
  - (c) Detection of gums
  - (d) All of these
14. Drug Evaluation means
  - (a) Detection of its chemical constituents
  - (b) Determination of its quality and purity
  - (c) Effectiveness of drug to its
  - (d) None of these
15. The process of preparation of crude drug for market after 'Drying' is
  - (a) Garbling
  - (b) Harvesting
  - (c) Packing
  - (d) Drying
16. The use of essential oil of plants to treat a range of disease is called
  - (a) Naturopathy
  - (b) Aromatherapy
  - (c) Homeopathy
  - (d) Ayurvedy
17. The common name of *Withania somnifera* is
  - (a) Nayantara
  - (b) Ashwagandha
  - (c) Vasaka
  - (d) Tulsi
18. The important constituent of *Withania somnifera* as nervous disorder
  - (a) Withanolides
  - (b) Tropine
  - (c) Anaferine
  - (d) All of these

19. *Catharanthus* belongs to the family  
(a) Lamiaceae (b) Apocynaceae  
(c) Malvaceae (d) Sonahaceae
20. Which active constituent of *catharanthus* have cardioprotective activity?  
(a) Vincristine (b) Ajmalieine  
(c) Serpentine (d) None of these
21. Depending upon the natural origin drug are following type  
(a) 3 (b) 2  
(c) 4 (d) 6
22. The term Pharmacognosy was first used by  
(a) Seydler (b) Derosne  
(c) Berg (d) None of them
23. The study of the action of drug is known as  
(a) Pathology (b) Pharmacology  
(c) Pharmacognosy (d) None of these
24. The scientific name of Fenugreek is  
(a) *Centella asiatica* (b) *Saraca indica*  
(c) *Trigonella foenum-graecum* (d) None of these
25. Clerodendron phlomoides is used as  
(a) Cardioprotective agent (b) Antirheumatic agent  
(c) Memory booster agent (d) Respiratory problem
26. Chemical Evaluation of crude drug means  
(a) determining the active constituents in the drug.  
(b) determining the moisture content in the drug.  
(c) total ash content in the drug.  
(d) All of these
27. Following is the one of the biological testing of herbal drug  
(a) Hepatoprotective activity (b) Radioimmuno assays  
(c) Fluorescence analysis (d) All of these
28. The Literature of 'Siddha System' is mostly in  
(a) Bengali (b) Hindi  
(c) Tamil (d) Oriya
29. Which is a factor for preservation of drug?  
(a) Temperature (b) Radiation  
(c) Water (d) Humidity

30. Common fumigant used for storage of crude drug  
(a) Sodium ursestate (b) Methyl bromide  
(c) Calcium ursestate (d) Ascerbic Acid
31. Indian Goose-berry is rich in  
(a) Vit. A (b) Vit. C  
(c) Vit. E (d) Iodine
32. The scientific name of Nayantara is  
(a) *Datura metel* (b) *Vitex negundo*  
(c) *Catharanthus roseus* (d) *Aegel manmelog*
33. Indian goose berry plant have  
(a) Antioxidant property (b) Antidiabetic property  
(c) Antianxiety property (d) All of these
34. Which chemical is responsible for Fenugreek's distinctive sharp smell?  
(a) Sotolon (b) Brucine  
(c) Serpentine (d) All of these
35. Which plant act as an anti-diabetic drug?  
(a) Ginger (b) Ashoka  
(c) Fenugreek (d) Both (a) and (b)
36. The useful part of *Clerodendron phlomoldes* for curing rheumatism  
(a) Root and leaf (b) Root and bark  
(c) Flower bud and leaf (d) Stem and bark
37. Which plant have antibacterial property?  
(a) Ginger (b) Tulsi  
(c) Ashoka (d) Arjuna
38. In case of micro popagation of medicinal plants which organic supplement is not use?  
(a) Yeast extract (b) Coconut milk  
(c) Arachis oil (d) Cow dung manure
39. Drying process of crude drug helps  
(a) removal of sufficient moisture content. (b) removal of foreign organic part.  
(c) removal of different adulterants. (d) All of these
40. *Centella asiatica* belongs to the family  
(a) Apiaceae (b) Asteraceae  
(c) Rublaceae (d) Malvacea
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