Seat No:_____ **Enrollment No:_____**

PARUL UNIVERSITY

COLLEGE OF AGRICULTURE

B.Sc.(Hons.) Agriculture Summer 2018 - 19 Examination

Semester: 2 **Date: 02/04/2019**
Subject Code: 20110152 **Time: 2:00 pm to 4:30 pm**
Subject Name: Agricultural microbiology **Total Marks: 50**

Instructions

1. All questions are compulsory.
2. Figures to the right indicate full marks.
3. Make suitable assumptions wherever necessary.
4. Start new question on new page.

Q.1 Do as Directed.

A. Fill in the blanks. (Each of 0.5 mark) **(05)**

1. A text book of Soil Microbiology is written by _____ .
2. _____ developed Petri dish used for solid culture media.
3. Rhizobium bio-fertilizer is recommended for_____ crop.
4. *Azotobacter* is a type of _____ nitrogen fixer.
5. First microscope was invented by _____.
6. *Rhizobium* is a type of _____ nitrogen fixer
7. _____bacteria is present in Azolla, roots, which is responsible for nitrogen fixation.
8. _____ is work as solidify agent in media.
9. A text book of Agriculture microbiology and microbial application is written by_____.
10. Azolla is an aquatic fern regarded as "_____".

B. Multiple choice type questions. (Each of 0.5 mark) **(10)**

1. _____ bio-fertilizer is recommended for All crops.
   a) Azospirillum c) Rhizobium
   b) Bio-NPK consortium d) None of above
2. Bacillus subtilis is one type of _____ .
   a) Biological nematicide c) Biological pesticide
   b) Biological fungicide d) All of above
3. _____ is free living nitrogen fixer.
   a) Azotobacter c) Rhizobium
   b) Azospirillium d) Frankia
4. Full form of CFU/ml is _____
   a) Colony formatting unit/ml c) Colony for unit% / ml
   b) Colony formation unit/ml d) colony for unit / ml
5. _____ is associative nitrogen fixer.
   a) Azotobacter c) Rhizobium
   b) Azospirillium d) Frankia
6. Lignocellulose material is made up of Lignin, Cellulose and _____
   a) Hemicellulose c) Carbon
   b) Acetic acid d) None of the above
7. _____ is known as father of microbiology.
   a) J C Luthra c) Louis Pasteur
   b) MW Beijernick d) Robert hook
8. When fodder is packed in air tight to preserve its nutritional value is known as _____.
   a) Hay c) Fodder
   b) Silage d) Nutrition
9. Which method is not recommended as a application of bio-fertilizer?
   a) Spraying directly on crops c) Seedling root dip treatment
   b) Seed treatment d) Soil treatment
10. Azolla can be regarded both as bio-fertilizer as well as _____ .
    a) Green manure c) Micronutrient mobilizer.
    b) bio-pesticide d) None of the above
11. Agar is work as _____ agent in media.
    a) Solidifying c) Supplement
    b)Drying d)None of above
12. _____reported the result of spontaneous generation.
    a) Louis Philippe c) Harshit Chavda
    b) Robert Hook d) John Needham

13. The first direct demonstration of the role of bacteria in causing disease came from the study of anthrax by the German physician_____ .
    a) TVS Prasad
    b) Pasteur
    c) Robert Koch
    d) None of the above
14. More than _____ % nitrogen can be supplemented when azolla dual cropped with rice.
    a) 10
    b) 20
    c) 30
    d) 50
15. A textbook of soil microbiology is written by_____
    a) PC Trivedi
    b) TVS Prasad
    c) Sonali Pandey
    d) Umesh Kumar
16. _____ first proposed use of agar in culture media.
    a) Robert Hook
    b) Pasteur
    c) Robert Koch
    d) Frau Hesse
17. Bio-fertilizer can replace _____% of chemical fertilizers .
    a) 10-15
    b) 15-20
    c) 20-25
    d) 25-30
18. Root nodules of _____ is present in pulses crop.
    a) Azotobacter
    b)Rhizobium
    c) Azospirillum
    d) Actinomycetes
19. A textbook of Bio-fertilizer and organic farming is written by_____
    a) NIIR board
    b) N.S .Subba rao
    c) MV Desai
    d) None of the above
20. Fresh odour or fresh smell from the soil after first rainfall is due to _____ micro-organisms, which saw primary bio-degradation activity in soil.
    a) Actinomyces
    b) Azotobacter
    c) Rhizobium
    d)Nematode

Q.2 Do as Directed.

A. Define the following. (Any five out of seven) **(05)**

1. Bacteria
2. Sterilization
3. Microbiology
4. Media
5. Bio-Fertilizer
6. Rhizobium
7. Silage

B. Answer the following. (Any five out of seven) **(05)**

1. Enlist the name of microbial fungicides.
2. Enlist important of microbiology in agriculture.
3. Give types of nitrogen fixing bacteria with examples.
4. Define: Soil microbiology.
5. Give advantages of biopesticides.
6. Explain Azolla- A bio-fertilizer .
7. Explain the role of microbes in soil fertility and crop production .

Q.3 Write short notes. (Any five out of six) **(10)**

1. Explain: Biopesticides.
2. Explain: Kitchen waste composting method.
3. Write down something about silage.
4. Enlist factors influencing activities of soil microorganisms.
5. Why azolla is only recommended for paddy?
6. Explain: Reddi's experiment on spontaneous generation theory.

Q.4 Long Questions/Example (Attempt any three out of four) **(15)**

1. Explain the steps of Koch's postulates.
2. Give details about the beneficial microorganisms in agriculture .
3. Explain bio-degradation of Agro-waste .
4. Explain about Bio-Fertilizer