

3-1-103 R

I B.Sc - SEMESTER- I: BOTANY SYLLABUS**W.E.F. 2016-17****Paper- I : Microbial Diversity, Algae and Fungi**Total hours of teaching 60hrs @ 4 hrs per week

UNIT-I: MICROBIAL WORLD (Origin and Evolution of Life, Microbial diversity (12hrs)

1. Discovery of microorganisms, origin of life, spontaneous, biogenesis, Pasteur experiments, germ theory of disease.
2. Classification of microorganisms – R.H. Whittaker's five kingdom concept, Carl Woese's- Domain system.
3. Brief account of special groups of bacteria- Archaeobacteria, Mycoplasma, Chlamydia, Actinomycetes, Rickettsias and Cyanobacteria.

UNIT- II: VIRUSES (12hrs)

1. Viruses- Discovery, general account, structure & replication of –T4 Phage (Lytic, Lysogenic) and TMV, Viroids, Prions.
2. Plant diseases caused by viruses– Symptoms, transmission and control measures (Brief account only).
3. Study of Tobacco Mosaic, Bendi Vein clearing and Papaya leaf curl diseases.

UNIT III: BACTERIA (12hrs)

1. Bacteria: Discovery, General characteristics, cell structure and nutrition.
2. Reproduction- Asexual and bacterial recombination (Conjugation, Transformation, Transduction).
3. Economic importance of Bacteria.

UNIT –IV Algae (12hrs)

1. General account - thallus organization and reproduction in Algae.
2. Fritsch classification of Algae (up to classes only) and economic importance.
3. Structure, reproduction and life history of *Oedogonium*, *Ectocarpus* and *Polysiphonia*.

UNIT V: FUNGI (12hrs)

1. General characteristics and outline classification (Ainsworth).
2. Structure, reproduction and life history of *Rhizopus* (Zygomycota), *Penicillium* (Ascomycota), and *Puccinia* (Basidiomycota).
3. Lichens-Structure and reproduction; ecological and economic importance.

Suggested activity: Seminar, Quiz, debate, collection of diseased plant parts –studying symptoms and identification of pathogen, collection and study of fresh and marine Algae available in local area.

Books for Reference:

1. Oladele Ogunseitan (2008) Microbial Diversity: Form and Function in Prokaryotes Wiley- Blackwell.
2. Pelczar, M.J. (2001) Microbiology, 5th edition, Tata Mc Graw-Hill Co, New Delhi.
3. Prescott, L. Harley, J. and Klein, D. (2005) Microbiology, 6th edition, Tata Mc Graw- Hill Co. New Delhi.
4. Fritsch F.E. (1935 The Structure & Reproduction of Algae 1945): Cambridge University Press Cambridge, U.K. Vol. I, Vol. II.
5. Smith, G.M (1955) :Cryptogamic Botany(Vol. I Algae, Fungi, & Lichens) McGraw-Hill Book Co., New York .
6. Ian Morris (1967): An Introduction to the Algae, Hutchinson, London.
7. Alexopoulos,C.J., Mims, C.W. & Blackwell, M. (1996): Introductory Mycology John Wiley& Sons., Inc., N.Y., Chicester, Berisbane, Toronto, Singapore.
8. Webster, J (1999) : Introduction to Fungi(2nd edition) Cambridge University Press.

****Student Activities like Seminars, Assignments, Fieldwork, Study Projects, Models etc. are Part of Curriculum for all units in all papers.**

I B.Sc – SEMESTER –I: BOTANY PRACTICAL SYLLABUS

Paper-I: Microbial Diversity, Algae and Fungi

Total hours of laboratory Exercises 30 hrs @ 2 per week

1. Knowledge of Equipment used in Microbiology: Spirit lamp, Inoculation loop, Hot-air oven, Autoclave/Pressure cooker, laminar air flow chamber and Incubator.
 2. Preparation of liquid and solid media for culturing of microbes (Demonstration).
 3. Study of viruses and bacteria using electron photo micrographs (TMV, Bacteriophage, HIV, Cocci, Bacillus, Spirillum bacteria).
 4. Gram staining technique.
 5. Study of Plant disease symptoms caused by Bacteria (Citrus canker, leaf blight of rice, Angular leaf spot of Cotton) and viruses (TMV, Bhendi vein clearing and Leaf curl of Papaya),Fungi (Late blight of potato, Red rot of Sugarcane and Paddy blast).
 6. Study of vegetative and reproductive structures of the following :
 - a) **Cyanobacteria:** *Nostoc and Scytonema*.
 - b) Algae: *Oedogonium, Ectocarpus, Polysiphonia*,
 - c) Fungi: *Rhizopus, Penicillium and Puccinia* .
 7. Study of plant materialinfected by Fungi (Rot of tomatoes,blue and greenmoulds of Ciitrus fruits and wheat rust(Section cutting of diseased parts of Wheat and Barberry - identification of different spores).
 8. Lichens: Morphology and of anatomy of different thalli.
 9. Field Visit.
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B.Sc - SEMESTER –I
BOTANY PRACTICAL PAPER –I
Paper-1 P: Microbial Diversity, Algae and Fungi

Time: 3hrs.

Max. Marks: 50

1. Identify giving reasons two of the given **Algal mixture** "A". Leave your preparation for evaluation. Draw labeled diagrams. (Slide--1mark, Diagrams--1mark, Identification--1mark)

3x 2 = 6 Marks

2. Make suitable stained preparation of the **material "B"** to bring out the details of internal structure--identify giving reasons. Draw labeled diagrams and leave your preparations for evaluation.
 (Slide-4 marks, diagrams-3 marks, Identification-3marks)

10 Marks

3. Perform Gram staining of the given Bacterial culture

9 Marks

4. Write critical notes and Identify D, E, F, G and H

(5X3)= 15 Marks

5. Record(submission is compulsory)

10 Marks

Total:

 50 Marks

Key:

A. Algal material

B. Fungi material

C. Bacterial culture

D. One of the instruments of Micro biology laboratory.

E. Whole specimen or a permanent slide of Algae.

F. Whole specimen or a permanent slide of Fungi.

G. Whole specimen or a permanent slide of Plant disease studied.

H. Whole specimen or a permanent slide of Lichens.

THREE YEAR B.SC. DEGREE EXAMINATION

FIRST SEMESTER

CHOICE BASED CREDIT SYSTEM

PART - II : BOTANY

Paper – I: Microbial Diversity, Algae and Fungi

Time: 3 Hours

Max. Marks: 75

SECTION-A

Answer any five of the following questions.

Draw neat and labelled diagram where ever necessary.

(5 X 5 =25 Marks)

1. Pasteur Experiments - పాశ్చర్ ప్రయోగాలు
2. Micoplasma - మైకోప్లాస్మా
3. Papaya Leaf curl - బొప్పాయి ఆకు ముడుత తెగులు
4. Bacteria cell diagram - బ్యాక్టీరియా కణము పటము
5. Polysiphonia Corposporophyta - పాలిసైఫానియా కార్పొస్పొరోఫైట
6. Puccinia Teleutospores - పక్సీనియా టెలుటోస్పోర్లు
7. Rhizopus Asexual Reproduction - రైజోపస్ అలైంగిక ప్రత్యుత్పత్తి
8. Autotrophic Bacteria - స్వయంపోషక బ్యాక్టీరియా

SECTION-B

Answer all questions

(5 X 10 = 50 Marks)

9. a) With the help of various theories write an essay on origin of life.
వివిధ సిద్ధాంతాల సహాయంతో జీవ పరిణామము గురించి ఒక వ్యాసము వ్రాయుము

(OR)

- b) Write an essay on Cyanobacteria.

సయనో బ్యాక్టీరియా గురించి ఒక వ్యాసము వ్రాయుము

10. a) Explain various methods of replication in viruses

వైరస్ లలో జరిగే వివిధ ప్రతికృతి విధానాలను వివరించుము

(OR)

b) Describe various methods of transmission of viral diseases.

వైరస్ వ్యాధులు వ్యాపించే విధానాలను వివరించుము

11 . a) Describe different methods of reproduction in bacteria.

బ్యాక్టీరియాలలో జరిగే వివిధ ప్రత్యుత్పత్తి విధానాలను వివరించుము

(OR)

b) Write an essay on economic importance of Bacteria.

బ్యాక్టీరియాల ఆర్థిక ప్రాముఖ్యము గురించి వ్రాయుము

12. a) Write an essay on economic importance of Algae.

శైవలాల ఆర్థిక ప్రాముఖ్యము గురించి వ్రాయుము

(OR)

b) Explain reproduction in Oedogonium.

ఈడోగోనియంలో జరిగే ప్రత్యుత్పత్తి విధానాలను వివరించుము

13. a) Write general characters of Fungi

శిలీంధ్రాల సాధారణ లక్షణాలను గురించి వ్రాయుము

(OR)

b) Describe the external and internal structure of Lichens with the help of diagrams.

లైకెన్స్ యొక్క బాహ్య మరియు అంతర్నిర్మాణములను పటముల సహాయంతో

వివరించుము