

ALLOCATION OF CREDITS AT SUBJECT LEVEL

Course: Science

Subject: Botany

S. No.	Sem ester	Module Nature	Modules (Paper)	Hours/ Week	Credits	Max. Marks (75+25)	
1	1	CORE-1 Paper-1A	Theory	Microbial Diversity , Algae, Fungi & Plant Pathology	04	04	100 (75+25)
			Practical	-do-	03	02	100 (75+25)

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

1. Origin of life –theories
2. Geological time scale
3. Microbial diversity-Mycoplasma – Chlamydia -Archaeobacteria –Actinomycetes

UNIT- II: VIRUSES AND BACTERIA (12 hrs)

1. Viruses: General account of Viruses, structure, replication and transmission of plant diseases caused by Viruses.
2. Bacteria: Structure, nutrition, reproduction and economic importance. Outlines of plant diseases of important crop plants caused by Bacteria and their control.

UNIT III: CYANOBACTERIA AND LICHENS (12 hrs)

1. Cyanobacteria: General account of cell structure, thallus organization and their uses as Biofertilizers
2. Structure, reproduction and life history of Nostoc and Scytonema
3. Lichens – Morphology –Anatomy –Reproduction –Economic importance

UNIT –IV Algae (12 hrs)

1. General account, Fritsch classification of Algae and economic importance.
2. Structure, reproduction, life history of Oedogonium, Ectocarpus and Polysiphonia

UNIT V: FUNGI (12 hrs)

1. General characters, classification(Alexopolous) and economic importance
2. Structure, reproduction and life history of *Albugo*, *Penicillium*, *Puccinia*
3. General account of plant diseases caused by Fungi and their control

Suggested Readings:

Alexopolous, J. and W.M Charles.1988 introduction to mycology.Wiley Eastern, New Delhi.

Ananthanarayan&Panikers ; Microbiology 9th edition.

Pandey, B.P 2001. College Botany Vol. I: Algae, Fungai, Lichens, Bacteria, Viruses, Plant pathology, Industrial Microbiology and Bryophyta. S. Chand & company Ltd, New Delhi.

Pandey, B.P 2007. Botany for Degree students: Diversity of microbes, Cryptograms, Cell biology and Genetics. S. Chand & company Ltd, New Delhi.

Sambamurthy, A.V.S.S 2006. A textbook of Algae. I.K. International Pvt. Ltd., New Delhi.

Sambamurthy, A.V.S.S 2006. A textbook of Plant Pathology. I.K. International Pvt. Ltd., New Delhi

Sharma, O.P 2006. A text book of Thallophyta, McGraw Hill Publishing. Co. New Delhi.

Thakur, A.K. and S.K. Bassi. 2008, A text book of Botany: Diversity of Microbes and Cryptogams. S. Chand & company Ltd, New Delhi.

Vashishta, B.R., A.K. Sinha and V.P.Singh. 2008. Botany for Degree Students: Algae. S. Chand & company Ltd, New Delhi

Vashishta, B.R.1990. Botany for Degree Students: Fungi. S. Chand & company Ltd, New Delhi.

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I B.Sc - BOTANY

PAPER-I; SEMESTER- I
THEORY MODEL PAPER

Paper-I- I T: Microbial Diversity, Algae and Fungi

Time: 3 Hours

Max. Marks: 75

SECTION-A (Short Answer Questions)

(Instructions to the paper setter: Set minimum ONE question from each unit, max Eight from all.)

Answer any *five* of the following questions 5x5=25M

- 1.
- 2.
- 3.
- 4.
- 5.
- 6.
- 7.
- 8.

SECTION-B (Essay Questions)

(Instructions to the paper setter: Set minimum two questions from each unit, either or internal choice)

Answer *All* of the following questions 5x10=50M

9. a) Or from unit I
 b)
10. a) Or from unit II
 b)
11. a) Or from unit III
 b)
12. a) Or from unit IV
 b)
13. a) Or from unit V
 b)

INTERNAL EXAMS

- 25Marks

15 marks for unit tests, 5 marks for assignments and remaining 5 marks for seminar etc.

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PRACTICAL SYLLABUS: PAPER I SEMESTER -I

Paper-I-IP: Microbial Diversity, Algae and Fungi

Total hours of laboratory Exercises 48 hrs @ 3 per week

1. Knowledge of Equipment used in Microbiology: Spirit lamp, Inoculation loop, Hot-air oven, Autoclave/Pressure cooker, Laminar air flow chamber, Incubator, etc.
2. Preparation of solid and liquid media for culturing of microbes (Demonstration)
3. Study of viruses and bacteria using electron micro photographs
4. Gram staining of Bacteria
5. Study of Plant disease symptoms caused by Bacteria (Citrus canker, leaf blight of rice, Angular leaf spot of Cotton) and viruses (TMV, Vein clearing of Bhendi and Leaf curl of Papaya), Fungi (Late blight of potato, Red rot of Sugarcane and Paddy blast)
6. Vegetative and reproductive structures of the following :
 - a. **Algae:** Oedogonium, Ectocarpus, Polysiphonia, Nostoc and Scytonema
 - b. **Fungi:** Albugo, Penicillium and Puccinia .
7. Section cutting of diseased material infected by Fungi and identification of pathogens as per theory syllabus
8. Lichens: Different types of thalli and Anatomy
9. **Field Visit**

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PRACTICAL EXAMINATIONS - MODEL PAPER

PAPER –I SEMESTER -I

Paper-I-1 P: Microbial Diversity, Algae and Fungi

Time 3hrs

Max. Marks: 75

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

3 x 3 = 9 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-6 marks, diagrams-5 marks, Identification-4 marks)

15 Marks

3. Conduct C.- Gram staining of Bacteria 16 Marks.
4. Write critical notes and Identify D, E, F, G and H 20 Marks.
5. Record (submission is compulsory) 10 Marks.
6. Viva –Voce 5 Marks

Total: 75 Marks

Key:

- A. Algal material
B. Fungi material
C. Bacterial material.
D. Instruments of Micro biology.
E. Whole specimen or permanent slide of Algae.
F. Whole specimen or permanent slide of Fungi.
G. Whole specimen or permanent slide of plant pathology.
H Whole specimen or permanent slide of Lichens

Internal Assessment

25 Marks

Total

100 Marks
