



TRIPURA UNIVERSITY

**(A Central University)
Suryamaninagar-799022**

Syllabus

OF

**Botany
(Major & General)**

Semester III

2014

Semester-III
Syllabus for B.Sc. Botany (Major)
(Theoretical)

Paper-BT301H

Full marks-60
(IA-12, E.S.E.-48)
Total Lectures - 30
(Each Lecture-I hr)

Unit I: Fungi and Plant Resource Utilisation

15 Periods

An outline classification of fungi upto class character (Hawksworth-1995). Economic importance of fungi. Lichens and their significance. Fungal spore form, sexual reproduction and degeneration of sex, Mycotoxins; General account of Phycomycetes, Life history of *Mucor*, *Synctitricum*; General account of Ascomycetes, Life history of *Penicillium*, *Ascobolus*; General account of Basidiomycetes, Life history of *Polyporus*, *Agaricus*; General account of Deuteromycetes, Life history of *Fusarium*, Parasexuality.

Cereal- Rice, Wheat; Pulses- Gram, Moong and Lens; Beverages- Tea and Coffee; Fruits- Mango, Citrus and Papaya; Drug yielding- Cinchona, Rauwolfia, Digitalis and Papaver; Spices- Ginger, Cumin and Clove; Oil yielding- Mustard, Groundnut, Coconut and Linseed; Vegetables- Potato, Radish and Cabbage; Fibre yielding- Cotton and Jute; Timber yielding- Teak and Sal; Sugar yielding- Sugarcane and Sugar beet.

Cultivation of Rice, Jute, Rubber and Tea.

Unit II: Microbiology and Plant pathology

15 Periods

General characteristics of Plant virus and Bacteriophage, Growth cycle (Lytic, T₄ and Lysogenic, λ virus); Bacteria-Cell structure and Endospore formation, Genetic recombination-Conjugation, transformation and transduction; Disease concepts, Symptoms-necrotic, hypoplastic and hyperplastic; Necrotrophs and biotrophs, mode of pathogenesis, Defense mechanism with special references to phytoalexins, Plant quarantine; Koch's postulates, Symptoms, Causal organisms, Disease cycle and Control measures of Late blight of potato, Brown spot of rice, Black stem rust of wheat and Stem rot of Jute.

Semester-III
Syllabus for B.Sc. Botany (General)
(Theoretical)

Paper-BT301P

Full marks-50
(IA-10, E.S.E.-40)
Total Lectures - 28
(Each Lecture-I hr)

Unit I: Fungi and Plant Resource Utilisation

14 Periods

An outline classification of fungi upto class character (Hawksworth-1995). Economic importance of fungi. Lichens and their significance; General account of Phycomycetes, Life history study of *Mucor*; General account of Ascomycetes, Life history study of *Penicillium*; General account of Basidiomycetes, Life history study of *Polyporus*; General account of Deuteromycetes, Life history study of *Fusarium*.

Cereal- Rice, Wheat; Pulses- Gram, Moong and Lens; Beverages- Tea and Coffee; Fruits- Mango, Citrus and Papaya; Drug yielding- Cinchona, Rauwolfia, Digitalis and Papaver; Spices- Ginger, Cumin and Clove; Oil yielding- Mustard, Groundnut, Coconut and Linseed; Vegetables- Potato, Radish and Cabbage; Fibre yielding- Cotton and Jute; Timber yielding- Teak and Sal; Sugar yielding- Sugarcane and Sugar beet.

Cultivation of Rice, Jute and Tea.

Unit II: Microbiology and Plant pathology

14 Periods

General characteristics of Plant virus and Bacteriophage; Growth cycle- Lytic (T_4) and Lysogenic (λ , virus); Bacteria- Cell structure and Endospore formation, Genetic recombination-Conjugation, transformation and transduction; Symptoms- necrotic, hypoplastic and hyperplastic; Koch's postulates, Symptoms, Causal organisms, Disease cycle and Control measures of Late blight of potato, Brown spot of rice and Black stem rust of wheat.

Semester-III
Syllabus for B.Sc. Botany (Major)
2014
(Practical)

Time: 3 hrs

Full marks-40
(IA-08, E.S.E.-32)

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|---|-------------|
| 1. Work out on fungi (including measurement)..... | 07 |
| 2. Work out on microbiology..... | 07 |
| 3. Identification with reasons..... | (5x2)=10 |
| a) Plant resource utilization..... | 2 specimens |
| b) Plant disease..... | 2 specimens |
| c) Fungi/Microbiology..... | 1 specimen |
| 4. Laboratory note book with submission..... | (3+1)=04 |
| 5. Viva-voce..... | 04 |

Practical – BT302H

1. Work out of the following fungi with reproductive structures (including microscopic measurement of reproductive structures) *Mucor*, *Ascobolus*, *Penicillium*, *Agaricus*, *Puccinia*, *Polyporus*.
2. Study from permanent slides: Zygosporangium of *Mucor*, Conidiophore of *Penicillium*, Conidia of *Fusarium*.
3. Preparation of bacterial media – (a) Nutrient agar and nutrient broth, (b) Preparation of slants and pouring Petriplates.
4. Sub-culturing of bacterial/fungal culture.
5. Microscopic examination of bacteria from natural habitat (curd) by Gram staining.
6. Preparation of fungal media (PDA).
7. Sterilization process.
8. Inoculation of pathogen from diseased leaf.
9. Identification: Pathological specimens of Brown spot of rice, Loose smut of wheat, Stem rot of jute, Late blight of potato; Slides of uredial, telial, pycnial & aecial stages of *Puccinia graminis*.

Semester-III
Syllabus for B.Sc. Botany (General)
2014
(Practical)

Time: 3 hrs

Full marks-50
(IA-10, E.S.E.-40)

1. Work out on fungi (excluding measurement).....10
2. Work out on microbiology.....10
3. Identification with reasons.....6x2=12
 - a) Plant resource utilization.....2 specimens
 - b) Plant disease.....2 specimens
 - c) Fungi/Microbiology.....2 specimens
4. Laboratory note book with submission.....(3+1)=04
5. Viva-voce.....04

Practical – BT302P

1. Work out of the following fungi with reproductive structures (excluding microscopic measurement of reproductive structures) *Mucor*, *Penicillium*, *Polyporus*.
2. Study from permanent slides: Zygosporangium of *Mucor*, Conidiophore of *Penicillium*, Conidia of *Fusarium*
3. Microscopic examination of bacteria from natural habitat (curd) by simple staining.
4. Preparation of fungal media (PDA).
5. Sterilization process.
6. Identification: Pathological specimens of Brown spot of rice, Loose smut of wheat, Stem rot of jute, Late blight of potato; Slides of uredial, telial, pycnial & aecial stages of *Puccinia graminis*.