

Total number of printed pages-4

1 (Sem-4) BOT 1

2025

BOTANY

Paper : BOT0400104

(Mycology and Phytopathology)

Full Marks : 45

Time : Two hours

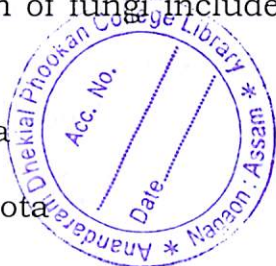
***The figures in the margin indicate
full marks for the questions.***

1. Choose the correct option for each question :

1×5=5

(a) Which division of fungi includes slime molds ?

- (i) Eumycota
- (ii) Myxomycota
- (iii) Zygomycota
- (iv) Ascomycota



- (b) The sac-like structure in Ascomycetes where spores are formed is called
- Basidium
 - Conidiophore
 - Ascus
 - Sporangium
- (c) *Alternaria* causes which plant disease ?
- Late blight of potato
 - Early blight of potato
 - Black rust of wheat
 - White rust
- (d) Which fungus is used in the production of citric acid ?
- Saccharomyces cerevisiae*
 - Aspergillus niger*
 - Rhizopus stolonifer*
 - Penicillium chrysogenum*
- (e) Ergot alkaloids, used to treat migraines, are derived from
- Aspergillus flavus*
 - Penicillium notatum*
 - Claviceps purpurea*
 - Saccharomyces cerevisiae*

2. Write short answer of the following : $2 \times 5 = 10$
- Define heterothallism in fungi.
 - What is plant quarantine ?
 - Define Integrated Disease Management (IDM).
 - What is spawn ?
 - How do fungi contribute to antibiotic production ? Give *one* example.
3. Answer **any four** of the following : $5 \times 4 = 20$
- What are the major components of a fungal cell wall ? Briefly describe their functions.
 - What are haustoria ? Explain their role in fungal parasitism.
 - Compare asexual reproduction in Mastigomycotina and Zygomycotina.
 - Describe the life cycle of *Mucor* with a labeled diagram.
 - What is heterokaryosis ? How does parasexuality contribute to genetic variation in Deuteromycotina ?
 - How would you differentiate powdery mildew infection from downy mildew in the field based on symptom appearance ?

(g) Explain how fungi contribute to agriculture as biofertilizers and biocontrol agents.

(h) Describe the process of mushroom cultivation from substrate preparation to harvesting.

4. Answer **any one** of the following :

10×1=10

(a) Explain the classification of Eumycota as per Ainsworth (1973). Name the classes under this group and their distinguishing features. 4+6=10

(b) Define mycorrhiza. Describe its major types and explain their significance in agriculture and forests. 2+5+3=10

(c) Give a detailed account of the life cycle of *Agaricus*. How does basidiospore formation occur, and what is its ecological significance ? 5+3+2=10

(d) Write down the causal organism, characteristics symptoms, and disease cycle of White Rust disease in cruciferous crops. 2+3+5=10