(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

Total number of printed pages–4

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

(i) Basidium

(ii) Conidiophore

(iii) Ascus

(iv) Sporangium

(c) *Alternaria* causes which plant disease ?

(i) Late blight of potato

(ii) Early blight of potato

(iii) Black rust of wheat

(iv) White rust

(d) Which fungus is used in the production of citric acid ?

(i) *Saccharomyces cerevisiae*

(ii) *Aspergillus niger*

(iii) *Rhizopus stolonifer*

(iv) *Penicillium chrysogenum*

(e) Ergot alkaloids, used to treat migraines, are derived from

(i) *Aspergillus flavus*

(ii) *Penicillium notatum*

(iii) *Claviceps purpurea*

(iv) *Saccharomyces cerevisiae*

2. Write short answer of the following : 2×5=10

(a) Define heterothallism in fungi.

(b) What is plant quarantine ?

(c) Define Integrated Disease Management (IDM).

(d) What is spawn ?

(e) How do fungi contribute to antibiotic production ? Give *one* example.

3. Answer ***any four*** of the following : 5×4=20

(a) What are the major components of a fungal cell wall ? Briefly describe their functions.

(b) What are haustoria ? Explain their role in fungal parasitism.

(c) Compare asexual reproduction in Mastigomycotina and Zygomycotina.

(d) Describe the life cycle of *Mucor* with a labeled diagram.

(e) What is heterokaryosis ? How does parasexuality contribute to genetic variation in Deuteromycotina ?

(f) How would you differentiate powdery mildew infection from downy mildew in the field based on symptom appearance ?