

2023

(CBCS)

(5th Semester)

BOTANY

FIFTH PAPER

(Fungi, Plant Pathology and Biostatistics)

Full Marks : 75

Time : 3 hours

*The figures in the margin indicate full marks for the questions**Use of Simple Calculator is allowed***(SECTION : A—OBJECTIVE)**

(Marks : 10)

Tick (✓) the correct answer in the brackets provided :

1×10=10

1. The type of spores released by active liberation in *Sordaria fimicola* is

- (a) basidiospores () (b) oospores ()
(c) zygosporangia () (d) ascospores ()

2. The most common methods of vegetative reproduction in fungi are fission, budding and

- (a) amylosum star formation ()
(b) fragmentation ()
(c) grafting ()
(d) layering ()

3. Fungi which obtain their food only from living tissues are
 (a) obligate parasites () (b) facultative parasites ()
 (c) obligate saprophytes () (d) facultative saprophytes ()
4. For industrial use, invertase is usually extracted from
 (a) *Aspergillus niger* () (b) *Penicillium notatum* ()
 (c) *Saccharomyces cerevisiae* () (d) *Claviceps purpurea* ()
5. Uredospore of rust fungi may be disseminated by
 (a) nematodes () (b) insects ()
 (c) water () (d) wind ()
6. Who is known as the father of Plant Pathology?
 (a) K. C. Mehta () (b) W. M. Stanley ()
 (c) E. J. Butler () (d) J. G. Kuhn ()
7. Wheat rust is caused by
 (a) *Colletotrichum falcatum* () (b) *Peronospora parasitica* ()
 (c) *Ustilago nuda tritici* () (d) *Puccinia graminis tritici* ()
8. *Phytophthora infestans* is the causal organism of
 (a) late blight of potato ()
 (b) wheat rust ()
 (c) citrus canker ()
 (d) red rot of sugarcane ()
9. The best measure to compare two or more series is
 (a) median () (b) arithmetic mean ()
 (c) mode () (d) geometric mean ()
10. A *t*-test is a significance test that assesses
 (a) the standard deviation of two dependent variables ()
 (b) the modes of two independent variables ()
 (c) the medians of two dependent groups ()
 (d) the means of two independent groups ()

(SECTION : B—SHORT ANSWERS)

(Marks : 15)

Write short notes on the following :

3×5=15

UNIT—I

1. Mastigomycotina

OR

2. Passive liberation of fungal spores

UNIT—II

3. Significance of parasexuality

OR

4. Symbiosis

UNIT—III

5. Mode of infection

OR

6. Scope of plant pathology

UNIT—IV

7. Symptoms of citrus canker

OR

8. Control measures of downy mildew of crucifers

UNIT—V

9. Coefficient of variation

OR

10. Median

(SECTION : C—DESCRIPTIVE)

(Marks : 50)

Answer the following :

10×5=50

UNIT—I

1. Give a comparative account on the structure, reproduction and life cycle of Basidiomycetes and Deuteromycetes. 10

OR

2. Write short notes on the following : 5+5=10
(a) Types of fungal spores
(b) Ascomycotina

UNIT—II

3. Write an account on the economic importance of fungi. 10

OR

4. Briefly describe the following : 5+5=10
(a) Evolutionary trends in fungi
(b) Heterothallism

UNIT—III

5. Discuss the various ways of transmission of pathogens. 10

OR

6. Write short notes on the following : 5+5=10
(a) Biological control of plant diseases
(b) Post-penetration

UNIT—IV

7. Write an account on the symptoms, disease cycle and control measures of early blight of potato. 10

OR

8. Discuss in brief the symptoms and disease cycle of the following : 5+5=10
- (a) Powdery mildew of crucifers
 - (b) Loose smut of wheat

UNIT—V

9. What is chi-square test? In a botanical laboratory, researchers repeated Mendel's experiments and reported 704 plants with violet red flowers and 224 plants with white flowers in F₂-generation. Test the goodness of fit by using chi-square method. [$\chi^2_{(0.05, 1)} = 3.841$] 2+8=10

OR

10. Write short notes on the following : 5+5=10
- (a) Mode
 - (b) Correlation
