Student's Copy

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(CBCS)

(5th Semester)

BOTANY

FIFTH PAPER

(Fungi, Plant Pathology and Biostatistics)

Full Marks : 75

Time : 3 hours

(PART : A—OBJECTIVE)

(*Marks* : 25)

The figures in the margin indicate full marks for the questions

SECTION—A

(*Marks* : 10)

Tick (✓) the correct answer in the brackets provided : 1×10=10

1. The character of Acrasiomycetes is

  (a) cellular slime mold ( )

  (b) net slime mold ( )

  (c) true slime mold ( )

  (d) endoparasitic slime mold ( )

2. Basidiospores may be produced on

  (a) paraphyses ( )   *(b)* hypophyses ( )

  (c) sterigmata ( )   *(d)* basidiophore ( )

       1

3. Fungi which obtain their food from dead and decaying matter and not from any living plants or animals are

(a) obligate parasites ( )

(b) facultative parasites ( )

(c) obligate saprophytes ( )

(d) All of the above ( )

4. Ergot or rye is caused by

(a) *Aspergillus niger* ( )

(b) *Penicillium notatum* ( )

(c) *Rhizopus stolonifer* ( )

(d) *Claviceps purpurea* ( )

5. Most chemicals applied as foliar sprays and dusts are usually aimed at control of diseases caused by

(a) viruses ( )   (b) fungi ( )

(c) algae ( )   (d) protozoans ( )

6. The flattened thickened tip of a hyphal branch by which some parasitic fungi attach to and penetrate their host is called

(a) appressorium ( )   (b) hyphal trap ( )

(c) stroma ( )   (d) haustorium ( )

7. Red rot of sugarcane is caused by

(a) *Ustilago nuda tritici* ( )

(b) *Alternaria solani* ( )

(c) *Peronospora parasitica* ( )

(d) *Colletotrichum falcatum* ( )

8. Which among the following is caused by bacterial pathogen?

(a) Downy mildew of crucifers ( )

(b) Wheat rust ( )

(c) Citrus canker ( )

(d) Late blight of potato ( )

9. What is the arithmetic mean for the data 31, 32, 42, 42, 43 and 62?

(a) 40 ( )   (b) 41 ( )

(c) 42 ( )   (d) 43 ( )

10. Chi-square test has limitations for the test of

   (a) goodness of fit   (   )

   (b) independence of attributes   (   )

   (c) homogeneity   (   )

   (d) sample size   (   )

SECTION—B

(*Marks* : 15)

Write short notes on the following :   3×5=15

1. Conidia

    OR

Passive liberation of fungal spores

2. Evolutionary trends in fungi

     OR

Types of heterothallism

3. Entry of plant pathogens through artificial openings

     OR

Scope of plant pathology

4. Types of endemism

    OR

Endemism in India

5. Two fruit-yielding plants with names and families

       OR

Three botanical names and families of food-yielding plants of North-East India

(PART : B—DESCRIPTIVE)

(*Marks* : 50)

The figures in the margin indicate full marks for the questions

Answer **five** questions, taking **one** from each Unit

UNIT—I

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

2. Write short notes on any *two* of the following :   5×2=10

   (a) Distinguishing characteristics of fungi

   (b) Asexual spores of fungi

   (c) Eumycota

UNIT—II

3. Define heterothallism. What are the two types of heterothallism recognized by Whitehouse? Explain Blakeslee's experiment on heterothallism in Mucorales.   2+3+5=10

4. Briefly describe any *two* of the following :   5×2=10

   (a) Parasexuality

   (b) Various modes of nutrition in fungi

   (c) Role of fungi in agriculture

UNIT—III

5. Discuss the dissemination of plant pathogens by various agencies with suitable examples.   10

6. Write short notes on any *two* of the following :   5×2=10

   (a) History of plant pathology

   (b) Defense role of phenolic compounds

   (c) Direct protection of plant diseases by biological methods

UNIT—IV

7. Write an account on the symptoms, disease cycle and control measures of wheat rust. 10

8. Discuss in brief the disease cycle of any *two* of the following : 5×2=10

(a) Late blight of potato

(b) Powdery mildew of crucifers

(c) Downey mildew of crucifers

UNIT—V

9. In order to find the effect of *Azolla* growth on the rice field and experimentally grown *Azolla* in 10 similar field plots before rice planting and other 10 similar plots were taken as control without *Azolla* growth. Rice was grown in all these plots and yields were noted :

Plot No.	1	2	3	4	5	6	7	8	9	10
With Azolla	15	15	16	17	15	17	16	16	17	16
Without Azolla	14	13	15	13	14	13	15	15	14	14

Find whether there is any significant effect of *Azolla* growth on the gain yield of rice or not. ($t_{0.05, 18}$ $2·10$) 10

10. Write short notes on any *two* of the following : 5×2=10

(a) Mode

(b) Standard error

(c) Coefficient of variation

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