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(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

(SECTION : A—OBJECTIVE)

(Marks : 10)

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

1×10=10

1. The main body of fungi is composed of a network of

(a) appressorium ()

(b) spores ()

(c) rhizoids ()

(d) hyphae ()

2. Zoospores are present in

- (a) mastigomycotina ()
- (b) zygomycotina ()
- (c) ascomycotina ()
- (d) basidiomycotina ()

3. What is the term for the symbiotic relationship between fungi and plant roots?

- (a) Lichen ()
- (b) Plectenchyma ()
- (c) Mycorrhiza ()
- (d) Sclerotia ()

4. Which of the following fungi is commonly used in baking and brewing?

- (a) *Aspergillus* ()
- (b) *Neurospora* ()
- (c) *Saccharomyces* ()
- (d) *Penicillium* ()

5. What are phytoalexins?

- (a) Physical barriers in plants ()
- (b) Chemical defenses in plants ()
- (c) Proteins involved in plant growth ()
- (d) Hormones regulating plant development ()

6. Which of the following is an example of a pre-penetration event?

- (a) Haustorium formation ()
- (b) Appressorium formation ()
- (c) Production of toxin ()
- (d) Activation of plant defense genes ()

7. Which one of the following is not caused by fungal pathogen?

- (a) Citrus canker ()
- (b) Early blight of potato ()
- (c) Wheat rust ()
- (d) Red rot of sugarcane ()

8. Loose smut of wheat is caused by

- (a) *Alternaria* sp. ()
- (b) *Colletotrichum* sp. ()
- (c) *Phytophthora* sp. ()
- (d) *Ustilago* sp. ()

9. The median of the data

1, 4, 7, 3, 2, 5, 6

is

- (a) 2 ()
- (b) 3 ()
- (c) 4 ()
- (d) 5 ()

10. What does a correlation coefficient of -1 indicate?

- (a) A weak negative correlation ()
- (b) A perfect positive correlation ()
- (c) No correlation ()
- (d) A perfect negative correlation ()

(SECTION : B—SHORT ANSWERS)

(Marks : 15)

Write short notes on the following :

3×5=15

UNIT—I

1. Deuteromycotina

OR

2. Asexual spores of fungi

UNIT—II

3. Parasitic fungi

OR

4. Parasexuality in fungi

UNIT—III

5. History of plant pathology

OR

6. Infection

UNIT—IV

7. Symptoms of wheat rust

OR

8. Disease cycle of late blight of potato

UNIT—V

9. Coefficient of variation

OR

10. Mode

(SECTION : C—DESCRIPTIVE)

(Marks : 50)

Answer the following :

10×5=50

UNIT—I

1. What are the main characteristics of fungi?

10

OR

2. Write short notes on the following :

5×2=10

(a) Sexual spores of fungi

(b) Liberation of fungal spores

UNIT—II

3. Describe the economic importance of fungi.

10

OR

4. Briefly describe the following :

5×2=10

(a) Heterothallism

(b) Saprophytic fungi

UNIT—III

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

10

OR

6. Write short notes on the following :

5×2=10

(a) Biological plant disease control

(b) Scope of plant pathology

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 control measures of the following : 5×2=10

- (a) Red rot of sugarcane
(b) Powdery mildew of crucifers

UNIT—V

9. In the garden pea, yellow cotyledon colour is dominant to green colour and inflated pod shape is dominant to the constricted form. When yellow inflated is self-fertilized, the hybrid ratio in F₂ is obtained as follows :

Yellow inflated 545; Yellow constricted 185

Green inflated 175; Green constricted 55

By using chi-square method, test whether it is in accordance with the 9:3:3:1 ratio or not (chi square at 5% for 3 d.f. is 7.815). 10

OR

10. Write short notes on the following : 5×2=10

- (a) Arithmetic mean
(b) Standard deviation
