2015

(5th Semester)

BOTANY

FIFTH PAPER

(Fungi, Plant Pathology and Biostatistics)

Full Marks : 55

Time : 2½ hours

(PART : B—DESCRIPTIVE)

(*Marks* : 35)

The figures in the margin indicate full marks for the questions

1. Give a detailed comparative account on the structure, reproduction and life cycle of Zygomycotina and Deuteromycotina. 7

Or

Write short notes on any *two* of the following : 3½×2=7

(a) Ascomycotina

(b) Types of fungal spores

(c) Active liberation of fungal spores

2. Write a comprehensive note on the various modes of nutrition in fungi. 7

Or

Briefly describe any *two* of the following : 3½×2=7

(a) Parasexuality in fungi

(b) Role of fungi in industry

(c) Role of fungi in medicine

3. Describe the various means of transmission of pathogens. 7

Or

Write short notes on any *two* of the following : 3½×2=7

(a) Post-penetration

(b) History of plant pathology

(c) Phytoalexins

4. Write a note on the symptoms, cycle and control measures of powdery mildew of crucifers. 7

Or

Briefly describe the disease cycle of any *two* of the following : 3½×2=7

(a) Red rot of sugarcane

(b) Early blight of potato

(c) Smut of wheat

5. What do you mean by test of significance? The dry weight (*g*) values from plant of a species grown at two soil nitrogen levels are as follows :

Low N level : 9, 11, 12, 10, 10, 11, 10, 12

High N level : 22, 26, 24, 23, 15, 18, 22, 20

By using *t*-test, find out whether the effect of nitrogen is significant or not. [The table value of *t* 1 76 for 1 degree of freedom at 5% level of significance] 2+5=7

Or

Write short notes on any *two* of the following : 3½×2=7

(a) Arithmetic mean

(b) Coefficient of variation

(c) Standard deviation

★★★

Subject Code : V/BOT (v)

Booklet No. A

Date Stamp .....

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To be filled in by the Candidate

DEGREE 5th Semester
(Arts / Science / Commerce / .....) Exam., **2015**

Subject .....
Paper .....

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2015

(5th Semester)

BOTANY

FIFTH PAPER

(Fungi, Plant Pathology and Biostatistics)

(PART : A—OBJECTIVE)

(*Marks* : 20)

The figures in the margin indicate full marks for the questions

Answer **all** questions

SECTION—I

(*Marks* : 5)

Put a Tick (✓) mark against the correct answer in the brackets provided : 1×5=5

1. Perfect state spore is absent in

(a) Mastigomycotina ( )

(b) Ascomycotina ( )

(c) Basidiomycotina ( )

(d) Deuteromycotina ( )

2. The three main fungal phyla Zygomycota, Ascomycota and Basidiomycota are thought to have diverged from

(a) Hyphochytridiomycota ( )

(b) Chytridiomycota ( )

(c) Oomycota ( )

(d) Trichomycota ( )

3. Which of the following organisms cannot directly penetrate through intact plant surfaces?

(a) Bacteria ( )

(b) Fungi ( )

(c) Nematodes ( )

(d) Parasitic higher plants ( )

4. The causal organism of late blight of potato is

(a) *Phytophthora infestans* ( )

(b) *Puccinia graminis* ( )

(c) *Xanthomonas citri* ( )

(d) *Alternaria solani* ( )

5. If the variables x and y are approximately linearly related and if y increases as x increases, the correlation between x and y is said to be

(a) neutral ( )

(b) uncorrelated ( )

(c) negative ( )

(d) positive ( )

SECTION—II

(*Marks* : 15)

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

1. Ascospores

2. Types of heterothallism

3. Infection

4. Standard error

5. Citrus canker

★★★

V/BOT (vi)

2015

(5th Semester)

BOTANY

SIXTH PAPER

(Algae, Lichens, Bryophytes)

Full Marks : 55

Time : 2½ hours

(PART : B—DESCRIPTIVE)

(*Marks* : 35)

The figures in the margin indicate full marks for the questions

1. Give an outline of Fritsch's system of classification of algae. 7

Or

Write a brief note on the characteristic features of major classes of algae.

2. Give an account of the mode of reproduction in chlorophyceae. 7

Or

Discuss the economic importance of algae.

3. Describe the distribution and general characteristic features of lichens. 7

Or

Give an account of the economic importance of lichens.

4. What are bryophytes? Write a note on the general features of bryophytes with suitable examples. 2+5=7

Or

Write a comparative account on the structure of sex organs in *Riccia* and *Polytrichum*. 7

5. Write an essay on progressive evolution of sporophytes in bryophytes. 7

Or

Write accounts on the following : 3½×2=7

(a) Bryophytes as indicator of pollution

(b) Fossil bryophytes

★★★

Subject Code : V/BOT (vi)

Booklet No. A

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2015

(5th Semester)

BOTANY

SIXTH PAPER

(Algae, Lichens, Bryophytes)

(PART : A—OBJECTIVE)

(*Marks* : 20)

The figures in the margin indicate full marks for the questions

SECTION—A

(*Marks* : 5)

Put a Tick (✓) mark against the correct answer in the brackets provided : 1×5=5

1. *Polysiphonia* exhibits

(a) diplontic life cycle ( )

(b) diplohaplontic life cycle ( )

(c) haplobiontic life cycle ( )

(d) diplobiontic life cycle ( )

2. Whiplash flagella are

(a) smooth surfaced ( )

(b) feathery ( )

(c) flagellum with a terminal fibril ( )

(d) None of the above ( )

3. In *Riccia*, the sporophyte

(a) is divisible into foot, seta and capsule ( )

(b) is divisible into foot and capsule ( )

(c) does not contain foot and seta ( )

(d) the capsule is absent ( )

4. Theory of progressive evolution of sporophytes in bryophytes was advocated by

(a) Evans (1939) ( )

(b) Goebel (1930) ( )

(c) Bower (1908–35) ( )

(d) Kashyap (1919) ( )

5. Lichens growing on soil are grouped as

(a) corticoles ( )

(b) saxicoles ( )

(c) terricoles ( )

(d) None of the above ( )

SECTION—B

(*Marks* : 15)

Write notes on the following : 3×5=15

1. Akinetes

2. Isomorphic alternation of generation

3. Crustose lichen

4. Protonema

5. Apophysis

★★★

V/BOT (vii)

2015

(5th Semester)

BOTANY

SEVENTH PAPER

(Cytogenetics, Plant Breeding and Bioinformatics)

Full Marks : 55

Time : 2½ hours

(PART : B—DESCRIPTIVE)

(*Marks* : 35)

The figures in the margin indicate full marks for the questions

1. Write short notes on the following : 3½×2=7

(a) Duplication

(b) Cytoskeleton

Or

Give an account of the physical structure of chromosomes. 7

2. Write brief notes on the following : 3½×2=7

(a) Allopolyploidy

(b) Types of aneuploidy

Or

Describe the different sources of chromosomal anomalies. 7

3. Briefly describe the following : 3½×2=7

(a) Cytoplasmic male sterility

(b) Plastid inheritance in *Mirabilis jalapa*

Or

What do you mean by mapping of genes on chromosomes? Discuss the different types of maps. 2+5=7

4. Write short notes on the following : 3½×2=7

(a) Mass selection

(b) Theories of hybrid vigour

Or

Describe the different types of physical mutagens and the mechanism of their action. 7

5. Describe briefly the following : 3½×2=7

(a) Biological database

(b) DNA sequence alignment

Or

Give a brief account of BLAST and its variants. 7

★★★

Subject Code : V/BOT (vii)

Booklet No. A

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2015

(5th Semester)

BOTANY

SEVENTH PAPER

(Cytogenetics, Plant Breeding and Bioinformatics)

(PART : A—OBJECTIVE)

(*Marks* : 20)

The figures in the margin indicate full marks for the questions

SECTION—A

(*Marks* : 5)

Put a Tick (✓) mark against the correct answer in the brackets provided : 1×5=5

1. In pericentric inversion, the inverted segment

(a) does not include the centromere ( )

(b) includes the centromere ( )

(c) is completely eliminated ( )

(d) is duplicated ( )

2. A monosomic plant obtained from a plant with 24 chromosomes will have

(a) 22 chromosomes ( )

(b) 23 chromosomes ( )

(c) 24 chromosomes ( )

(d) 25 chromosomes ( )

3. Kappa particles in *Paramecium* are endosymbiotic bacteria belonging to the genus

(a) *Enterococcus* ( )

(b) *Helicobacter* ( )

(c) *Haematobacter* ( )

(d) *Caedibacter* ( )

4. A strain of an organism that is homozygous because of continued inbreeding is a

(a) hybrid ( )

(b) cybrid ( )

(c) pure line ( )

(d) mutant ( )

5. A byte is equal to

(a) 4 bits ( )

(b) 8 bits ( )

(c) 12 bits ( )

(d) 16 bits ( )

SECTION—B

(*Marks* : 15)

Write notes on the following : 3×5=15

1. Translocation

2. Segmental polyploidy

3. Karyotype

4. Point mutation

5. Significance of bioinformatics

★★★

V/ BOT (viii)

2015

(5th Semester)

BOTANY

EIGHTH PAPER

(Environmental Biology and Ethnobotany)

Full Marks : 55

Time : 2½ hours

(PART : B—DESCRIPTIVE)

(*Marks* : 35)

The figures in the margin indicate full marks for the questions

1. What is biogeochemical cycle? Describe the carbon cycle with a diagram. 1+6=7

Or

What do you mean by natural resources? Explain the renewable and non-renewable resources. 3+4=7

2. What is greenhouse effect? Mention the important greenhouse gases. 3+4=7

Or

Write short notes on the following : 3½+3½=7

(a) Photochemical smog

(b) Effect of ozone depletion

3. Describe the various measures of soil conservation. 7

Or

What is Biodiversity loss? Explain the *ex-situ* and *in-situ* conservations. 3+4=7

4. Write short notes on : 3½+3½=7

(a) Endemism

(b) Vegetation

Or

What is phytogeography? Describe the various floristic regions of India. 2+5=7

5. Write the botanical names, families and parts used of two fodder- and fiber-yielding plants. 3½+3½=7

Or

Describe ethnobotany and its significance. 7

★★★

Subject Code : **V/BOT (viii)**

Booklet No. A

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2015

(5th Semester)

BOTANY

EIGHTH PAPER

(Environmental Biology and Ethnobotany)

(PART : A—OBJECTIVE)

(*Marks* : 20)

The figures in the margin indicate full marks for the questions

SECTION—A

(*Marks* : 5)

Put a Tick (✓) mark against the correct answer in the brackets provided : 1×5=5

1. Which of the following acts as resource producers and processors?

(a) Environment ( )

(b) Ecosystem ( )

(c) Biodiversity ( )

(d) All of the above ( )

2. Ozone (O_3) is present in the layer of

(a) troposphere ( )

(b) stratosphere ( )

(c) mesosphere ( )

(d) thermosphere ( )

3. The Wildlife Protection Act was formulated in the year

(a) 1974 ( )

(b) 1972 ( )

(c) 1986 ( )

(d) 1973 ( )

4. The mountains of Himalayas and Nilgiri above 5300 ft altitude lie under

(a) tropical forests ( )

(b) montane subtropical forests ( )

(c) temperate forests ( )

(d) alpine forests ( )

5. *Citrullus lanatus* is a common

(a) food ( )

(b) fruit ( )

(c) fodder ( )

(d) fiber ( )

SECTION—B

(*Marks* : 15)

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

1. Acid rain

2. Patent

3. Hotspots

4. Biomagnification

5. IPR

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