2 0 1 6

(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 critical note on different types of fungal spore and their liberation. 7

Or

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

(a) Ainsworth's system of classification of fungi

(b) Comparison of asexual spores of Ascomycotina and Basidiomycotina

(c) General features of fungi

2. Briefly describe the economic importance of fungi. 7

Or

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

(a) Evolutionary trends in fungi

(b) Heterothallism

(c) Modes of nutrition in fungi

3. Describe different biological methods adopted for plant disease control. 7

Or

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

(a) Scope of plant pathology

(b) Infection

(c) Physical defense mechanism

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

Or

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

(a) Citrus canker

(b) Downy mildew of crucifers

(c) Loose smut of wheat

5. What do you mean by chi-square test? Find whether or not the following phenotype distribution in a sample of 112 flies from a particular fruit fly population has a goodness of fit with the Mendelian 9 : 3 : 3 : 1 distribution (critical value of χ^2 at 0·05 for 3 d.f. is 7·82) : 2+5=7

Phenotypes	Grey body red eye	Black body red eye	Grey body scarlet eye	Black body scarlet eye
Frequencies	59	20	25	8

Or

Write short notes on any *two* of the following :

3½×2=7

(a) Median

(b) Standard error

(c) Correlation

★★★

To be filled in by the Candidate

DEGREE 5th Semester
(Arts / Science / Commerce /
........................) Exam., **2016**

Subject ....

Paper ....

....

To be filled in by the Candidate

DEGREE 5th Semester

(Arts / Science / Commerce /

........................) Exam., **2016**

Roll No. ....

Regn. No. ....

Subject ....

Paper ....

Descriptive Type

Booklet No. B ....

INSTRUCTIONS TO CANDIDATES

1. **The Booklet No. of this script should be quoted in the answer script meant for descriptive type questions and vice versa.**

2. **This paper should be ANSWERED FIRST and submitted within** *45 minutes* **of the commencement of the Examination.**

3. **While answering the questions of this booklet, any cutting, erasing, over-writing or furnishing more than one answer is prohibited. Any rough work, if required, should be done only on the main Answer Book. Instructions given in each question should be followed for answering that question only.**

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Scrutiniser(s)*

*Signature of
Examiner(s)*

*Signature of
Invigilator(s)*

/151

2 0 1 6

(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. Asexual reproduction is by zoospore formation in

   (a) Mastigomycotina ( )

   (b) Zygomycotina ( )

   (c) Ascomycotina ( )

   (d) Basidiomycotina ( )

2. The great antibiotic drug penicillin was obtained from

(a) *Penicillium divaricatum* ( )

(b) *Penicillium griseofulvum* ( )

(c) *Penicillium notatum* ( )

(d) *Penicillium javanicum* ( )

3. Foliage sprays and dusts are in which type of control measures?

(a) Physical ( )

(b) Chemical ( )

(c) Biological ( )

(d) Structural ( )

4. *Colletotrichum falcatum* causes the disease

(a) early blight of potato ( )

(b) powdery mildew of crucifers ( )

(c) citrus canker ( )

(d) red rot of sugarcane ( )

5. 'Root-mean-square deviation from mean' is

    (a) arithmetic mean   (   )

    (b) correlation   (   )

    (c) standard deviation   (   )

    (d) standard error   (   )

(**4**)

(*Marks* : 15)

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

1. Zoospores

(5)

2. Parasexuality in fungi

3. Passive dispersal or dissemination of pathogens

4. Control measures of wheat rust

5. Arithmetic mean

★★★

2 0 1 6

(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. Write a detailed note on pigmentation of algae. 7

Or

Describe the characteristic features of Cyanophyceae. 7

2. What type of life cycles are found in Chlorophyceae? Supplement your answer with suitable examples. 7

(2)

Or

Give a comprehensive account of the mode of reproduction found in Phaeophyceae. 7

3. What is lichen? Write a brief description on the following types of lichen : 1+(2+2+2)=7

(a) Crustose

(b) Fruticose

(c) Foliose

Or

Describe the methods of reproduction in lichen. 7

4. Write the classification of bryophytes in detail. 7

Or

With the help of labelled diagram, compare the sporophyte of *Pellia* and *Sphagnum*. 7

5. Write a brief account of origin of bryophytes. 7

Or

Give comparative account of the position and structure of archegonia of *Riccia* and *Pellia*. 7

★★★

Subject Code : $\text{V}/_{\text{BOT (vi)}}$

Booklet No. A

Date Stamp ....

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Signature of Invigilator(s)

/152

2 0 1 6

(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. Alginic acid is obtained from

   (a) Chlorophyceae   (   )

   (b) Phaeophyceae   (   )

   (c) Rhodophyceae   (   )

   (d) Myxophyceae   (   )

2. Chlorophyll b is found only in

(a) Phaeophyceae ( )

(b) Rhodophyceae ( )

(c) Xanthophyceae ( )

(d) Chlorophyceae ( )

3. The mode of life of lichen is

(a) saprophytic ( )

(b) parasitic ( )

(c) symbiotic ( )

(d) autotrophic ( )

4. Lepton mantle in *Polytrichum* represents

(a) rudimentary pericycle ( )

(b) starch layer ( )

(c) physiological phloem ( )

(d) physiological xylem ( )

5. Columella is a part of

(a) capsule   ( )

(b) seta   ( )

(c) foot   ( )

(d) rhizome   ( )

(4)

SECTION—B

(*Marks* : 15)

Write notes on the following :   3×5=15

   1. Aplanospores

2. Algal biofertilizer

3. Isidium

4. Retort cells

5. Elaters and pseudoelaters

★★★

2 0 1 6

(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+3½=7

   (a) Translocation

   (b) Structure of chromosome

Or

Briefly describe an account on cytoskeleton.   7

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

   (a) Trisomics

   (b) Segmental allopolyploidy

(**2**)

Or

Give a brief account on different consequences of chromosomal anomalies.   7

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

   (a) Physical map

   (b) Karyotype

Or

Describe self-sterility in plants with suitable diagram.   7

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

   (a) Heterosis

   (b) Pure line selection

Or

Give a brief account on molecular basis of mutation.   7

5. Describe briefly the following :   3½+3½=7

   (a) BLAST

   (b) Bioinformatics

Or

Give an account on DNA database. Explain DNA sequence alignment.   2+5=7

★ ★ ★

Subject Code : V/ BOT (vii)

Booklet No. A

Date Stamp ....

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/153

2 0 1 6

(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. Histone proteins are found in

(a) microtubules ( )

(b) chromosomes ( )

(c) intermediate filaments ( )

(d) None of the above ( )

2. Aneuploidy is the condition when there is

(a) addition of one or more entire sets of chromosome. (   )

(b) addition of one or more individual chromosome (   )

(c) loss of whole chromosome (   )

(d) doubling the chromosome in hybrid (   )

3. Cytoplasmic inheritance is discovered by

(a) Karl Correns (   )

(b) Gregor Johann Mendel (   )

(c) Charles Darwin (   )

(d) Tschermak (   )

4. A strain of an organism heterozygous inbreeding method is known as

(a) linkage (   )

(b) pure line (   )

(c) mass selection (   )

(d) heterosis (   )

5. BLASTX is a search tool which translates

(a) protein to nucleotide   (   )

(b) nucleotide to nucleotide   (   )

(c) nucleotide to protein   (   )

(d) protein to protein   (   )

(4)

Write notes on the following :   3×5=15

   1. Duplication

(5)

2. Monosomics

3. Enhancer gene

4. Physical mutagens

5. Protein database

★★★

2 0 1 6

(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. Define biogeochemical cycle. Give an account on hydrologic cycle.   1+6=7

Or

Write notes on the following :   3½+3½=7

(a) Positive interaction between organisms

(b) Light as an environmental factor

2. What is pollution? Give a brief account on nonbiodegradable pollution.   1+6=7

Or

Write notes on the following :   3½+3½=7

(a) Radioactive waste management

(b) Biomagnification

3. Give a brief account on different measures of water conservation.   7

Or

Write notes on the following :   3½+3½=7

(a) *ex-situ* conservation

(b) IPR

4. Describe different vegetation types of India.   7

Or

Write notes on the following :   3½+3½=7

(a) Endemism

(b) Hot spots

5. Define ethnobotany. Write a note on the scope of ethnobotany in India.   1+6=7

Or

Write notes on the following :   3½+3½=7

(a) Two medicinal plants and their uses

(b) Two fibre-yielding plants with families and parts used

★★★

2 0 1 6

(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 deal with the formation, physical and chemical properties of soil?

   (a) Topographic factors ( )

   (b) Edaphic factors ( )

   (c) Climatic factors ( )

   (d) Biotic factors ( )

2. A high biological oxygen demand (BOD) indicates

   (a) that water is pure   (   )

   (b) absence of microbial action   (   )

   (c) low level of microbial population   (   )

   (d) high level of microbial population   (   )

3. Which of the following do not serve for *ex-situ* conservation of species?

   (a) National parks   (   )

   (b) Botanical gardens   (   )

   (c) Gene banks   (   )

   (d) Genetic resource centres   (   )

4. The kind of vegetation where tree height becomes lesser with increasing altitude is called

   (a) alpine forest   (   )

   (b) montane subtropical forest   (   )

   (c) tropical dry forest   (   )

   (d) temperate forest   (   )

5. Which of the following plants is ethnobotanically used as food?

(a) *Gossypium*   (   )

(b) *Mangifera*   (   )

(c) *Cinchona*   (   )

(d) *Oryza sativa*   (   )

(4)

SECTION—B

(*Marks* : 15)

Write notes on the following : 3×5=15

1. Greenhouse effect

2. Importance of ethnobotany

3. Phytogeographical region of Western Himalayas

4. Renewable energy

5. Biodiversity loss

★★★