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(Pre-CBCS)

(5th Semester)

BOTANY

FIFTH PAPER

(Fungi, Plant Pathology and Biostatistics)

Full Marks : 55

Time : 2½ hours

(PART : A—OBJECTIVE)

(*Marks : 20*)

The figures in the margin indicate full marks for the questions

SECTION—A

(*Marks : 5*)

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

1×5=5

1. The most common cell wall material in fungi is

(a) cellulose ()

(b) pectin ()

(c) chitin ()

(d) lignin ()

- 2.** The penicillin drug was invented by
- (a) Louis Pasteur ()
 - (b) Alexander Fleming ()
 - (c) Ainsworth ()
 - (d) C. J. Alexopoulos ()
- 3.** The branched structures which penetrate in the host tissue and have absorptive function are called
- (a) haustoria ()
 - (b) appressorium ()
 - (c) hyphae ()
 - (d) hyphopodia ()
- 4.** *Alternaria solani* the causal organism for early blight of potato belongs to a class
- (a) Deuteromycotina ()
 - (b) Zygomycotina ()
 - (c) Ascomycotina ()
 - (d) Basidiomycotina ()
- 5.** An integer used to determine whether a chi-square value is statistically significant is called
- (a) *t*-test ()
 - (b) degrees of freedom ()
 - (c) median ()
 - (d) standard deviation ()

SECTION—B

(Marks : 15)

Write brief notes on the following :

3×5=15

1. Passive liberation of fungal spores
2. Importance of fungi as food
3. Physical defense mechanism before infection
4. Symptoms of powdery mildews of crucifers
5. Standard deviation

(PART : B—DESCRIPTIVE)

(Marks : 35)

The figures in the margin indicate full marks for the questions

1. Classify fungi up to classes according to Ainsworth system of classification by giving their salient features. 7

OR

Write notes on any *two* of the following :

3½×2=7

- (a) Basidiomycotina
- (b) Types of fungal spores
- (c) Salient features of fungi

2. Describe the role of fungi in agriculture and medicine. 7

OR

Write notes on any *two* of the following :

3½×2=7

- (a) Parasexuality in fungi
- (b) Heterothallism in fungi
- (c) Saprophytic mode of nutrition in fungi

3. Discuss the different modes of spread of pathogens.

7

OR

Write notes on any *two* of the following :

$3\frac{1}{2} \times 2 = 7$

(a) Chemical defense mechanism in plants

(b) Scope of plant pathology

(c) Biological control of plant disease

4. Describe the symptoms, causal organism and disease cycle of late blight of potato.

7

OR

Write notes on any *two* of the following :

$3\frac{1}{2} \times 2 = 7$

(a) Citrus canker

(b) Disease cycle of downy mildew of crucifers

(c) Symptoms and control measures of smuts of wheat

5. What do you mean by arithmetic mean? Calculate the arithmetic mean for the following grouped data :

$2+5=7$

<i>Class interval</i>	10–20	20–30	30–40	40–50	50–60	60–70
<i>Frequency</i>	3	5	10	15	5	12

OR

Write notes on any *two* of the following :

$3\frac{1}{2} \times 2 = 7$

(a) Median

(b) Standard error

(c) Chi-square test

2 0 1 8

(Pre-CBCS)

(5th Semester)

BOTANY

SIXTH PAPER

(Algae, Lichens, Bryophytes)

Full Marks : 55

Time : 2½ hours

(PART : A—OBJECTIVE)

(*Marks : 20*)

The figures in the margin indicate full marks for the questions

SECTION—A

(*Marks : 5*)

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

1×5=5

1. Coenobium is found in

(a) *Vaucheria* ()

(b) *Ectocarpus* ()

(c) *Volvox* ()

(d) *Chara* ()

2. Chlorophyll b is found only in

- (a) Cyanophyceae ()
- (b) Chlorophyceae ()
- (c) Rhodophyceae ()
- (d) Xanthophyceae ()

3. Lichens which grow on rocks are called

- (a) saxicoles ()
- (b) corticoles ()
- (c) foliose ()
- (d) crustose ()

4. The spore-producing organ in bryophytes is

- (a) foot ()
- (b) seta ()
- (c) capsule ()
- (d) archegonium ()

5. Which one is not the characteristic of bryophytes?

- (a) Exhibit alternation of generation ()
- (b) Plant body thalloid or leafy ()
- (c) The dominant life cycle is the sporophyte ()
- (d) They are chiefly terrestrial ()

SECTION—B

(Marks : 15)

Write notes on the following :

3×5=15

1. Spores and resting phases in algae
2. Sexual reproduction in Rhodophyceae
3. Fruticose lichens
4. Elaters and pseudoelaters
5. General characteristics of bryophytes

(PART : B—DESCRIPTIVE)

(Marks : 35)

The figures in the margin indicate full marks for the questions

1. Describe the general characteristics of Cyanophyceae.

7

OR

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

3½×2=7

- (a) Thallus organisation in algae
- (b) Flagellation in algae
- (c) Storage products of algae

2. Give an account of the mode of reproduction found in Phaeophyceae.

7

OR

Describe the economic importance of algae.

7

3. Describe the general characteristics of lichens.

7

OR

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

3½×2=7

- (a) Lichens
- (b) Crustose lichen
- (c) Foliose lichen

4. Describe the major classes of bryophytes with their characteristic features. 7

OR

Compare the structure of sporophyte of *Riccia* and *Polytrichum*. 7

5. Discuss the origin and evolution of sporophytes in bryophytes. 7

OR

Write accounts on any *two* of the following : $3\frac{1}{2} \times 2 = 7$

(a) Bryophytes as indicator of pollution

(b) Fossil bryophytes

(c) Archegonia of *Sphagnum*

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2 0 1 8

(Pre-CBCS)

(5th Semester)

BOTANY

SEVENTH PAPER

(Cytogenetics, Plant breeding and Bioinformatics)

Full Marks : 55

Time : 2½ hours

(PART : A—OBJECTIVE)

(Marks : 20)

The figures in the margin indicate full marks for the questions

SECTION—A

(Marks : 5)

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

1×5=5

1. The thinnest fibre of the cytoskeleton is

- (a) microfilaments ()
- (b) microtubules ()
- (c) macrotubules ()
- (d) intermediate filaments ()

2. Aneuploidy refers to

- (a) gain of complete chromosome set ()
- (b) loss of complete chromosome set ()
- (c) gain or loss of complete chromosome set ()
- (d) gain or loss of one or more chromosome ()

3. The inheritance of kappa particles in *Paramecium* is an example of extra-nuclear inheritance through

- (a) mitochondria ()
- (b) plastid ()
- (c) endosymbionts ()
- (d) ribosomes ()

4. Transition mutation involves the substitution of a

- (a) pyrimidine with a purine ()
- (b) purine with a pyrimidine ()
- (c) purine with a purine and pyrimidine with a pyrimidine ()
- (d) pyrimidine with a purine and purine with a pyrimidine ()

5. A biological database for nucleotide sequence maintained by the NCBI is

- (a) BLAST ()
- (b) FASTA ()
- (c) Swiss-Prot ()
- (d) gene bank ()

SECTION—B

(Marks : 15)

Write notes on the following :

3×5=15

1. Microtubules
2. Segmental allopolyploidy
3. Multiple allelism
4. Types of mutation
5. DNA database

(PART : B—DESCRIPTIVE)

(Marks : 35)

The figures in the margin indicate full marks for the questions

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

3½×2=7

- (a) Deletion
- (b) Inversion
- (c) Structure of chromosomes

OR

What is duplication? Give an account of the different types of duplication and its cytological and genetic consequences.

1+6=7

2. Briefly describe any *two* of the following :

3½×2=7

- (a) Allopolyploidy
- (b) Trisomics
- (c) Monosomics

OR

Describe the origin and production of autopolyploids with the help of suitable examples.

7

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

(a) Karyotype

(b) Self-sterility in plants

(c) Genetic maps

OR

Write explanatory note on plastid inheritance in *Mirabilis jalapa* with the help of a suitable diagram. 7

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

(a) Mass selection

(b) Hybridization

(c) Theories of hybrid vigour

OR

Give an account of chemical mutagens and the mechanism of their action. 7

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

(a) DNA sequence alignment

(b) Bioinformatics

(c) Protein database

OR

What is BLAST? Describe the different types of BLAST programs available.

2+5=7

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2 0 1 8

(Pre-CBCS)

(5th Semester)

BOTANY

EIGHTH PAPER

(Environmental Biology and Ethnobotany)

Full Marks : 55

Time : 2½ hours

(PART : A—OBJECTIVE)

(Marks : 20)

The figures in the margin indicate full marks for the questions

SECTION—A

(Marks : 5)

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

1×5=5

1. Which of the following is renewable natural resource?

(a) Natural gas ()

(b) Coal ()

(c) Nuclear energy ()

(d) Water ()

2. Which of the following is responsible for ozone depletion in atmosphere?

- (a) Chlorofluorocarbon ()
- (b) Carbon tetrachloride ()
- (c) Methane ()
- (d) All of the above ()

3. Covering the soil surface by grass, leaves and straw is called

- (a) contour farming ()
- (b) tillage ()
- (c) mulching ()
- (d) strip cropping ()

4. In India, common mangrove forests are found in

- (a) Kaziranga ()
- (b) Sunderbans ()
- (c) Nilgiri Hills ()
- (d) Western Ghats ()

5. Which of the following is a medicinal plant?

- (a) *Tectona grandis* ()
- (b) *Schima wallichii* ()
- (c) *Zea mays* ()
- (d) *Emblica officinalis* ()

SECTION—B

(Marks : 15)

Write notes on the following in brief:

3×5=15

1. Biosphere
2. Greenhouse effect
3. Patent
4. Hot spot
5. Fibre-yielding plants

(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 resource? Explain the renewable and non-renewable resources. 1+3+3=7

2. What is acid rain? Describe the causes and consequences of acid rain. 2+5=7

OR

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

- (a) Photochemical smog
- (b) Ozone depletion

3. What do you mean by biodiversity loss? Explain in brief the ex-situ and in-situ conservations. 2+2½+2½=7

OR

Describe briefly various measures of soil conservation. 7

4. Describe various vegetation types of India.

7

OR

Write short notes on the following :

$3\frac{1}{2}+3\frac{1}{2}=7$

(a) Endemism

(b) Floristic diversity in Alpine Zone of India

5. Write the botanical names, families and parts used of two fodder and fibre-yielding plants.

$3\frac{1}{2}+3\frac{1}{2}=7$

OR

Describe ethnobotany and its significance.

7

2 0 1 8

(CBCS)

(5th Semester)

BOTANY

FIFTH PAPER

(Fungi, Plant Pathology, 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. Perfect state spore is absent in

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

2. Fungi are always

- (a) parasitic ()
- (b) saprophytic ()
- (c) heterotrophic ()
- (d) autotrophic ()

3. The antibiotic drug penicillin was obtained from

- (a) *Penicillium notatum* ()
- (b) *Penicillium javanicum* ()
- (c) *Penicillium divaricatum* ()
- (d) *Collectotrichum falcatum* ()

4. Parasexuality was first discovered by
- (a) Alexander Fleming ()
 - (b) E. J. Butler ()
 - (c) Alexopoulos and Ainsworth ()
 - (d) Pontecorvo and Roper ()
5. Formation of tyloses in plant is a
- (a) physical defense mechanism ()
 - (b) chemical defense mechanism ()
 - (c) biological defense mechanism ()
 - (d) biochemical defense mechanism ()
6. Fungal hyphae penetrate hard cell wall of their host with the help of
- (a) enzymes ()
 - (b) hormones ()
 - (c) haustoria ()
 - (d) sharp tips ()
7. The causal organism of late blight of potato is
- (a) *Puccinia-triticina* ()
 - (b) *Phytophthora infestans* ()
 - (c) *Alternaria solani* ()
 - (d) *Puccinia graminis* ()
8. The famous Irish famine is due to
- (a) rusts of wheat ()
 - (b) early blight of potato ()
 - (c) late blight of potato ()
 - (d) citrus canker ()
9. The most frequent occurring observation in the data is called
- (a) mean ()
 - (b) median ()
 - (c) mode ()
 - (d) standard deviation ()

10. The positive square root of the mean of the squared deviations of some observations from their arithmetic mean is called

- (a) standard deviation ()
- (b) variation ()
- (c) median ()
- (d) mode ()

SECTION—B

(Marks : 15)

Write short notes on the following :

3×5=15

1. Zoospores

OR

Ascospores

2. Modes of nutrition in fungi

OR

Obligate parasites

3. Penetration

OR

Passive dispersal or dissemination of pathogen

4. Disease cycle of loose smut of wheat

OR

Control measures of wheat rust

5. Arithmetic mean

OR

Standard error

(PART : B—DESCRIPTIVE)

(Marks : 50)

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.

10

OR

2. Write brief notes on any *two* of the following : 5×2=10
(a) Ainsworth's system of classification of fungi
(b) Types of fungal spores
(c) Active liberation of fungal spores

3. Write a comprehensive note on the various modes of nutrition in fungi. 10

OR

4. Describe any *two* of the following : 5×2=10
(a) Evolutionary trends in fungi
(b) Heterothallism
(c) Economic importance of fungi

5. Define infection. Explain the different types of host-pathogen interaction. 2+8=10

OR

6. Write short notes on any *two* of the following : 5×2=10
(a) Scope of plant pathogen
(b) Biological control of plant disease
(c) Physical defense mechanism

7. Describe the symptoms, disease cycle and control measures of early blight of potatoes. 10

OR

8. Briefly describe the symptoms of any *two* of the following : 5×2=10
(a) Red rot of sugarcane
(b) Citrus canker
(c) Downy mildew of crucifers

9. Find whether or not the following observed distribution of phenotypes in a sample of 384 *Drosophila* flies have a significant goodness of fit with proposed Mendelian 9 : 3 : 3 : 1 distribution. The value of chi-square at 5% level for 3 degrees of freedom is 7.815 : 10

<i>Phenotypes</i>	:	AB	Ab	aB	ab	Total
<i>No. of individuals</i>	:	232	76	58	18	384

OR

10. Write short notes on any *two* of the following : 5×2=10
(a) Median
(b) Standard deviation
(c) Correlation

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2 0 1 8

(CBCS)

(5th Semester)

BOTANY

SIXTH PAPER

(Algae, Lichens, Bryophytes)

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. In Frisch's classification, algae are classified into

- (a) 11 classes ()
- (b) 12 classes ()
- (c) 10 classes ()
- (d) 14 classes ()

2. Reserve food 'laminarin' is found in

- (a) Xanthophyceae ()
- (b) Rhodophyceae ()
- (c) Phaeophyceae ()
- (d) Cyanophyceae ()

3. Motile and flagellated stages are found in

- (a) Chlorophyceae ()
- (b) Cyanophyceae ()
- (c) Rhodophyceae ()
- (d) None of the above ()

4. Antibiotic chlorellin is obtained from the member of

- (a) Phaeophyceae ()
- (b) Xanthophyceae ()
- (c) Bacillariophyceae ()
- (d) Chlorophyceae ()

5. Chief source of carrageenan, an alginic acid is

- (a) *Chondrus crispus* ()
- (b) *Gloeopeltis furcata* ()
- (c) *Ulva lactuca* ()
- (d) *Chlorella pyrenoidosa* ()

6. Lichen used in preparation of cosmetics is

- (a) *Evernia prunastri* ()
- (b) *Paramellia saxatilis* ()
- (c) *Cetraria islandica* ()
- (d) *Letaria vulpina* ()

7. Mode of nutrition of lichen is

- (a) saprophytic ()
- (b) parasitic ()
- (c) symbiotic ()
- (d) All of the above ()

8. Columella is absent in

- (a) *Riccia* ()
- (b) *Anthoceros* ()
- (c) *Polytrichum* ()
- (d) None of the above ()

9. Elaterophore is found in

- (a) *Sphagnum* ()
- (b) *Polytrichum* ()
- (c) *Riccia* ()
- (d) None of the above ()

10. Simplest type of sporophyte is found in

- (a) *Sphagnum* ()
- (b) *Polytrichum* ()
- (c) *Pellia* ()
- (d) *Riccia* ()

SECTION—B

(Marks : 15)

Write notes on the following in brief :

3×5=15

1. Trichome

OR

Akinetes

2. Aplanospore

OR

Hypnospore

3. Haplontic life cycle

OR

Diplontic life cycle

4. Pseudopodium

OR

Peristome

5. Gametophore

OR

Paraphysis

(PART : B—DESCRIPTIVE)

(Marks : 50)

The figures in the margin indicate full marks for the questions

1. Write a detailed note on pigmentation of algae. 10

OR

Describe the characteristic features of Chlorophyceae. 10

2. Discuss the economic importance of algae. 10

OR

What do you mean by alternation of generation? Describe the reproduction in Rhodophyceae giving examples. 10

3. What is lichen? Give a brief description of the following types of lichens : 2+4+4=10

(a) Crustose

(b) Foliose

OR

Describe briefly economic importance of lichens. 10

4. Describe major classes of Bryophytes with their characteristic features. 10

OR

With the help of labelled diagrams, compare the sporophytes of *Riccia* and *Pellia*. 5+5=10

5. Write a brief account of origin of Bryophytes. 10

OR

Describe the evolution of sporophytes of Bryophytes with suitable diagrams and examples. 10

★ ★ ★

2 0 1 8

(CBCS)

(5th Semester)

BOTANY

SEVENTH PAPER

(Cytogenetics, Plant breeding and Bioinformatics)

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. An acrocentric chromosome will have

- (a) equal arms ()
- (b) almost equal arms ()
- (c) a very short and a very long arm ()
- (d) only one arm ()

2. The histones present in a nucleosome core are

- (a) H₁, H_{2A}, H_{2B} and H₄ ()
- (b) H_{1A}, H₂, H₃ and H₄ ()
- (c) H_{2A}, H_{2B}, H₃ and H₄ ()
- (d) H₁, H₂, H₃ and H₄ ()

3. The genomic formula of a monosomic is

- (a) $2n - 1$ ()
- (b) $2n - 2$ ()
- (c) $2n + 2$ ()
- (d) $2n + 1$ ()

- 4.** When there is gain of one or more entire set of chromosome, the condition is known as
 (a) duplication () (b) translocation ()
 (c) euploidy () (d) aneuploidy ()
- 5.** Genetic map is also called
 (a) physical map ()
 (b) linkage map ()
 (c) centimorgan/centiMorgan ()
 (d) restriction map ()
- 6.** Alleles are
 (a) alternate forms of the same gene ()
 (b) alternate forms of different genes ()
 (c) two different genes ()
 (d) many chromosomes ()
- 7.** The term 'mutation' was coined by
 (a) de Vries () (b) Mendel ()
 (c) Morgan () (d) Darwin ()
- 8.** Heterosis is the
 (a) induction of mutation ()
 (b) inferiority of hybrids over their parents ()
 (c) superiority of hybrids over their parents ()
 (d) None of the above ()
- 9.** A bit has a binary value of
 (a) 0 or 1 () (b) 1 or 2 ()
 (c) 2 or 3 () (d) 3 or 4 ()
- 10.** BLASTP is a search tool that compares a
 (a) protein query against a DNA database ()
 (b) protein query against a protein database ()
 (c) DNA query against a protein database ()
 (d) DNA query against a DNA database ()

SECTION—B

(Marks : 15)

Write notes on the following :

3×5=15

1. Paracentric and pericentric inversion

OR

Structure of chromosome

2. Allopolyploidy

OR

Autoallopolyploidy

3. Genetic map

OR

Multiple allelism

4. Transition

OR

Frameshift mutation

5. Bioinformatics

OR

Search tools

(PART : B—DESCRIPTIVE)

(Marks : 50)

The figures in the margin indicate full marks for the questions

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

5×2=10

(a) Types of duplication

(b) Types of translocation

(c) Deletion

OR

Give a detailed account of the cytoskeleton of a cell.

10

2. Briefly describe any *two* of the following : 5×2=10
- (a) Autopolyploidy
 - (b) Segmental allopolyploidy
 - (c) Sources of chromosomal anomalies

OR

What is aneuploidy? Mention the different types of aneuploidy present. 2+8=10

3. Write short notes on any *two* of the following : 5×2=10
- (a) Plastid inheritance in *Mirabilis jalapa*
 - (b) Concept of karyotype
 - (c) Quantitative inheritance

OR

Explain cytoplasmic male sterility with the help of a suitable diagram. 10

4. Briefly describe any *two* of the following : 5×2=10
- (a) Pure line selection
 - (b) Molecular basis of mutation
 - (c) Hybridization

OR

Give an account of the different types of physical mutagens and the mechanism of their action. 10

5. Write short notes on any *two* of the following : 5×2=10
- (a) BLAST
 - (b) Protein database
 - (c) DNA database

OR

Describe DNA sequence alignment and analysis. 10

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2 0 1 8

(CBCS)

(5th Semester)

BOTANY

EIGHTH PAPER

(Environmental Biology and Ethnobotany)

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. Environmental factors which deal with the structure of the soil are termed as

- (a) edaphic factors ()
- (b) topographic factors ()
- (c) biotic factors ()
- (d) climatic factors ()

2. The global environment is made up of

- (a) atmosphere ()
- (b) lithosphere ()
- (c) hydrosphere ()
- (d) All of the above ()

3. Which of the following produces the most damaging acid rain?

- (a) Sulphur dioxide ()
- (b) Carbon dioxide ()
- (c) Carbon monoxide ()
- (d) Hydrogen sulphide ()

4. The radiation that is absorbed by the layer of ozone in the stratosphere is
(a) infrared rays ()
(b) cosmic radiations ()
(c) ultraviolet rays ()
(d) visible rays ()
5. Conservation of biodiversity in controlled condition of zoos, gardens, sanctuaries is known as
(a) *ex situ* conservation ()
(b) *in situ* conservation ()
(c) natural conservation ()
(d) None of the above ()
6. The Environmental (Protection) Act was enacted in the year
(a) 1986 ()
(b) 1992 ()
(c) 1984 ()
(d) 1974 ()
7. Savannas are grasslands with
(a) thick trees ()
(b) bushes ()
(c) scattered trees ()
(d) no trees ()
8. Hot spots are region of high
(a) rarity ()
(b) endemism ()
(c) critically endangered population ()
(d) diversity ()
9. The staple food of Mizoram is
(a) *Triticum aestivum* ()
(b) *Hordeum vulgare* ()
(c) *Oryza sativa* ()
(d) *Avena sativa* ()
10. *Gossypium arboreum* is
(a) fibre-yielding plant ()
(b) fruit plant ()
(c) fodder plant ()
(d) medicinal plant ()

SECTION—B

(Marks : 15)

Write notes on the following in brief :

3×5=15

1. Biogeochemical cycle

OR

Red Data Book

2. Biomagnification

OR

Topographic factor

3. Patent

OR

Non-conventional energy source

4. Phytogeography

OR

Phytogeographic divisions of world

5. Three botanical names and families of fibre-yielding plants

OR

Plants in folklore

(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. What do you mean by natural resources? Explain the renewable and non-renewable resources. 2+8=10
2. Describe in brief any *two* of the following : 5×2=10
- (a) Carbon cycle
- (b) Types of biodiversity
- (c) Interaction of environmental factors

UNIT—II

3. What is greenhouse effect? Discuss the causes of global warming and various remedial measures to check it. 2+8=10
4. Write brief notes on any *two* of the following : 5×2=10
- (a) Radioactive waste management
 - (b) Non-biodegradable pollutants
 - (c) Acid rain

UNIT—III

5. Describe the various measures of soil conservation. 10
6. Describe in brief any *two* of the following : 5×2=10
- (a) Environmental laws
 - (b) Biodiversity conservation
 - (c) Water resources

UNIT—IV

7. Describe the vegetational zone in Eastern and Western Himalayas. 10
8. Write short notes on any *two* of the following : 5×2=10
- (a) Endemism
 - (b) Hot spots
 - (c) Grassland vegetation in India

UNIT—V

9. What is ethnobotany? Describe its scope in India. 2+8=10
10. Write notes on any *two* of the following : 5×2=10
- (a) Two fruit-yielding plants with scientific names, families and uses
 - (b) Two fodder plants with scientific names, families and uses
 - (c) Two medicinal plants with scientific names, families and uses

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