

Roll No.

Total No. of Questions : 9]
(2033)

[Total No. of Printed Pages : 4

UG (CBCS) IIIrd Year Annual Examination

3305

B.Sc. BOTANY

(Economic Botany and Biotechnology)

(DSE-1A)

Paper : BOTA 301

Time : 3 Hours]

[Maximum Marks : 50

Note :- Attempt *five* questions in all, selecting *one* question from each of the Sections-B, C, D and E. Question No. 1 of Section-A is compulsory. Attempt all subparts of a question together.

Section-A

(Compulsory Question)

1. Do as directed :

(i) The source of cotton fibre is

(a) Roots

(b) Stems

(c) Leaves

(d) Seeds

CA-505

(1)

Turn Over

- (ii) Give the botanical name of rice.
- (iii) The vegetative propagation in sugarcane is done by
- (a) panicle (b) root
- (c) stem (d) bulbils
- (iv) Expand the term IARI.
- (v) Crushing, tearing and curling (CTC) are common method applied for the manufacturing of tea. (True/False)
- (vi) Organogenesis refers to :
- (a) Formation of callus tissue
- (b) Formation of roots and shoots from callus
- (c) Both (a) and (b)
- (d) None of the above
- (vii) is used for sterilization of media.
- (a) Incubator (b) Refrigerator
- (c) Laminar air flow (d) Autoclave
- (viii) ELISA stands for

..... blotting technique is used to detect
..... sequence in tissue sample.

- (a) DNA (b) RNA
(c) Protein (d) Starch
- (x) Which of the following is not used as a vector for cloning of DNA ?
- (a) pBR322 (b) RAPD
(c) YAC (d) EMBL3
- 1×10=10

Section-B

2. (a) Write a brief note on the major research institute of crop plants of India. 5
(b) Write short notes on the following :
(i) Dry cultivation and wet cultivation of rice. 2½+2½
(ii) Origin of wheat.
3. (a) Write the botanical name, family and part used of five common spices.
(b) Define Pulses. Give the uses of Soyabean. 5,5

Section-C

4. Write short notes on the following :
(a) Non-alcoholic beverages
(b) Groundnut 5×2=10

5. Write a botanical name, family, part used and medicinal property of *five* medicinal plants. 10

Section-D

6. Write short notes on the following :
- (a) Haploid production
 - (b) Eembryo culture 5×2=10
7. (a) Describe the steps required for plant tissue culture.
- (b) Discuss the application of plant tissue culture in agriculture.. 6,4

Section-E

8. (a) What is *r*-DNA ? Write in brief the basic steps involved in cloning.
- (b) What are transgenic plants ? What role will such plants play in future crop improvement programmes ? 5,5
9. Write short notes on the following :
- (a) Monoclonal antibodies
 - (b) PCR 5×2=10

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UG (CBCS) IIIrd Year Annual Examination
3307

B.Sc. BOTANY

(Cell and Molecular Biology)

(DSE-1B)

Paper : BOTA 303

Time : 3 Hours]

[Maximum Marks : 50

Note :- Attempt *five* questions in all. Q. No. 1 is compulsory.
Attempt *one* question from each Section-B, C, D
and E. All questions carry equal marks.

Section-A

(Compulsory Question)

1. Do as directed :

- (i) microscope enable to study living cells.
- (ii) Cell was discovered by
- (iii) Which cell organelle is protein factory of cell ?

CA-507

(1)

Turn Over

- (iv) Nucleolus was discovered by
- (v) Crossing over occurs during stage.
- (vi) Middle lamella is made up of and
..... .
- (vii) DNA replication occurs during phase.
- (viii) Name the purines present in DNA.
- (ix) Which enzyme is responsible for DNA replication ?
- (x) Name the initiation codon. 1×10=10

Section-B

2. (a) Draw well labelled prokaryotic cell. Differentiate between prokaryotic and eukaryotic cell.
- (b) How is light microscope differ from electron microscope ?
- (c) Define resolving and magnifying power of microscope. 5+3+2
3. (a) Describe ultrastructure and function of chloroplast.

(b) What do you mean by semiautonomous nature of mitochondria ?

(c) Describe the marker enzymes of mitochondria. 5+3+2

Section-C

4. (a) Discuss the structure and functions of endoplasmic reticulum.

(b) Explain briefly packaging of DNA in eukaryotes.

(c) Differentiate between Heterochromatin and Euchromatin. 5+3+2

5. (a) Describe the structure and functions of cell wall.

(b) Name the proteins and their functions present in cell membrane.

(c) What is selective permeable ? 5+3+2

Section-D

6. (a) Describe the cell cycle and its check points.

- (b) Draw well labelled diagrams of Zygotene and Pachytene.
- (c) What is B-DNA ? 5+3+2
7. (a) What is DNA replication ? Explain the various steps of replication of DNA.
- (b) Differentiate between RNA and DNA.
- (c) Write a short note on Satellite DNA. 5+3+2

Section-E

8. (a) Define Translation. What are different steps in Protein Synthesis ?
- (b) What is Genetic Code ? What are the characteristics of a genetic code ? 6+4
9. (a) Explain gene regulation in Prokaryotes with respect to Tryptophan Operon.
- (b) Give the structure and functions of *m*-RNA. 6+4

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(2033)

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UG (CBCS) IIIrd Year Annual Examination

3311

B.Sc. BOTANY

(Mushroom Cultivation Technology)

(SEC-II)

Paper : BOTA 307

Time : 3 Hours]

[Maximum Marks : 70

Note :- Attempt *five* questions in all. Q. No. 1 (Part-A) is compulsory. Attempt *one* question from each Part B, C, D and E. Attempt all parts of a question together.

Part-A

(Compulsory Question)

1. (A) (i) Formaldehyde is used as in mushroom cultivation.
- (ii) The common name of *Pleurotus sajor-kaju* is :
- (a) Shitake mushroom

CA-511

(1)

Turn Over

- (b) Button mushroom
 - (c) Paddy straw mushroom
 - (d) Oyster mushroom
- (iii) The cultivation of Paddy straw mushroom started in which country ?
- (iv) Preservation methods of mushrooms are :
- (a) Pickling
 - (b) Canning
 - (c) Both (a) and (b)
 - (d) None of the above
- (v) What is the duration between the flushes in mushroom crop ?
- (vi) In India, *Agaricus bisporus* was first cultivated in which state ?
- (vii) In which country mushroom cultivation started first ?
- (viii) Components of mushroom farm are :
- (a) Spawn unit
 - (b) Inoculation room
 - (c) Incubation room
 - (d) All of the above

(ix) Spawn is the of mushroom.

(a) Spores

(b) Mycellium

(c) Fruit

(d) Both (a) and (b)

(x) Wet bubble disease of mushroom is caused

by $1 \times 10 = 10$

(B) (i) What is 'casing' in mushroom cultivation ?

(ii) What is mother spawn ? $2 \times 2 = 4$

Part-B

2. (i) Write a detailed note on the history of mushroom cultivation.

(ii) Describe about different types of edible mushrooms available in India. $7,7$

3. (i) Give the medicinal benefits of mushrooms.

(ii) Write a detailed note on the nutritional value of mushrooms. $7,7$

Part-C

4. (i) Give a general account of poisonous mushrooms.
(ii) Discuss the methods of spawn production for mushroom cultivation. 7,7
5. (i) Describe the composting technology in mushroom production.
(ii) Describe the paddy straw mushroom cultivation in detail. 7,7

Part-D

6. Describe in detail the post harvesting and value addition in mushrooms. 14
7. Explain about the storage of mushrooms. 14

Part-E

8. (i) Write a detailed note on the marketing of mushrooms.
(ii) Discuss the importance of Regional and National Research Institutes of mushroom cultivation in India. 7,7
9. (i) Describe the various recipes of mushrooms.
(ii) Write a detailed note on the pests of mushrooms. 7,7

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(2053)

[Total Pages : 05

**UG (CBCS) (First Year) Annual
EXAMINATION**

2305057

B. Sc. (Core) BOTANY

**Biodiversity (Microbes, Algae, Fungi and
Archeogoniatates) (Core)**

BOTA-101-TH

Time : 3 Hours]

[Maximum Marks : 50

The candidates shall limit their answer precisely within the answer-book (40 pages) issued to them and no supplementary/continuation sheet will be issued.

Note : Attempt *five* questions in all. Q. No.1 in Section A is compulsory. Attempt *one* question each from Section B, C, D and E. Attempt all parts of a question together. Illustrate your answer with well-labelled diagrams wherever necessary.

(S-A23-01/4) R-2305057

P.T.O.

Section A

(Compulsory Question)

1. (i) Who discovered bacteriophages ?
- (ii) Bacteria with helically coiled shapes are called
- (iii) Cap cells are characteristic of.....
- (iv) The female reproductive structure in *Polysiphonia* is called
- (v) All fungi are :
 - (a) Symbionts
 - (b) Parasites
 - (c) Saprophytes
 - (d) Heterophytes
- (vi) The fruiting body of *Penicillium* is known as :
 - (a) Apothecium
 - (b) Perithecium
 - (c) Cleistothecium
 - (d) Stroma

(vii) Lichens are good indicator of :

- (a) Air pollution
- (b) Soil pollution
- (c) Water pollution
- (d) All of the above

(viii) A stele without a central pith is called.....

(ix) is known as Maiden hair fern.

(x) Which plant has the largest sperms ?

10×1=10

Section B

2. (a) Write an illustrated account of the modes of sexual reproduction in the algae. 5

(b) Write short notes on the following : 5

(i) Role of algae in agriculture

(ii) Synzoospores.

3. (a) Describe the process of sexual reproduction in *Vaucheria*. 5

- (b) What is alternation of generation ?
Explain it with reference to the life-cycle
of *Ectocarpus*. 5

Section C

4. (a) Describe in detail the sexual reproduction
in *Phytophthora infestans*. 5
(b) Write short notes on the following : 5
(i) Gametangial copulation in *Rhizopus*
(ii) Economic importance of Fungi.
5. (a) Draw life-cycle of *Puccinia*. 5
(b) Discuss the internal structure of lichen
thalli. 5

Section D

6. (a) Describe the process of transformation
in bacteria. 5
(b) Draw well labelled diagram of V.S. of
archegoniophore of *Marchantia*. 5

7. (a) Bryophytes are also called amphibians of plant kingdom. Why ? 4
- (b) Write short notes on the following : 6
- (i) Peristome teeth in *Funaria*
- (ii) Apogamy and its significance.

Section E

8. (a) What is Heterospory ? Illustrate your answer with reference to life-cycle of *Selaginella*. Give its significance. 6
- (b) Describe the structure of ovule of *Cycas*. 4
9. Write short notes on the following : $4 \times 2\frac{1}{2} = 10$
- (i) Mycorrhiza
- (ii) Economic importance of Gymnosperms
- (iii) Coralloid roots of *Cycas*
- (iv) Polyembryony in *Pinus*.

Roll No.

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[Total Pages : 05

UG (CBCS) (First Year) Annual
EXAMINATION
2305058

B.Sc. (Core) BOTANY

Plant Ecology and Taxonomy (Core)

BOTA-102-TH

Time : 3 Hours]

[Maximum Marks : 50

The candidates shall limit their answer precisely within the answer-book (40 pages) issued to them and no supplementary/continuation sheet will be issued.

Note : Attempt *Five* questions in all. Q. No. 1 is compulsory. Attempt one question each from Section A, B, C and D.

5. (a) What is ecological pyramids ? Discuss the pyramids of number, energy and biomass in ecosystem.
- (b) What is the food chain and food web in ecosystem ? Describe in detail with example. 5+5=10

Section C

6. (a) What is a herbarium ? Explain the process of preparation and uses of herbarium in detail.
- (b) What is Botanical Garden ? Write the brief history and role of botanical garden in world. 5+5=10
7. (a) What are taxonomic evidences ? Discuss the importance of cytology in the classification of plants.
- (b) Discuss in detail about the different Taxonomic groups. 5+5=10

Section D

8. (a) Explain the principle and rules of ICN.
What is valid publication ?
- (b) Discuss the merits and demerits of Bentham and Hooker's system of classification. **5+5=10**
9. (a) Describe the salient features of Engler and Prantl system of classification. Also give its outline.
- (b) What is Numerical Taxonomy ? Discuss the basic steps involved in Numerical taxonomy. **5+5=10**