

**FIFTH SEMESTER U.G. DEGREE (SPECIAL) EXAMINATION
NOVEMBER 2020**

(CUCBCSS—UG)

Botany

BOT 5D 02—APPLIED BOTANY

Time : Two Hours

Maximum : 40 Marks

Section A

All questions to be attended.

Answer all questions.

1 mark each.

1. What is the binomial of black gram ?
2. Name an edible mushroom.
3. Which ability of the plant cells is utilized in plant tissue culture ?
4. Name a pesticide.
5. What is the morphology of useful part of ginger ?
6. Give an example for organic manure.
7. Name the family to which tea plant belong to.
8. Give the binomial of jack fruit.
9. Which instrument is used in the laboratory to sterilize tissue culture medium ?
10. Name a chemical fertilizer.

(10 × 1 = 10 marks)

Section B (Short Answer Questions)

All questions can be attended and overall ceiling.

2 marks each.

11. What is spawn ?
12. Define biopesticide.
13. What is meant by bonsai ?
14. Write a brief note on *Anthurium* cultivation.

Turn over

15. What is the advantage of grafting ?
16. Write a brief note on medicinal uses of *Phyllanthus*.
17. What is meant by drip irrigation ?
18. Define pH.
19. What is T-budding ?
20. Give the composition of potting mixture.

(10 × 2 = 20 marks)

Section C

All questions can be attended and overall ceiling.

Short essay answer any two questions.

Carries 5 marks each.

21. Explain vermicomposting technique.
22. What are chemical fertilizers ? What are its merits and demerits ?
23. Explain the methods of layering.

(2 × 5 = 10 marks)

FIFTH SEMESTER U.G. (CUCBCSS—UG) DEGREE [SPECIAL]
EXAMINATION, NOVEMBER 2020

Botany

BOT 5B 08—GENERAL AND BIOINFORMATICS, INTRODUCTORY BIOTECHNOLOGY
AND MOLECULAR BIOLOGY

Time : Three Hours

Maximum : 80 Marks

Section A

*Answer all questions.**Each question carries 1 mark.*

1. The molecular organization of DNA was elucidated by _____ and _____.
2. The BR in pBR322 vector denotes _____.
3. Name a chemical mutagen.
4. The process by which DNA is synthesized from RNA.
5. Expand URL.
6. The molecular glue.
7. _____ is the explant for production of haploid tissue.
8. First bacterium whose complete genome is sequenced.
9. Nucleotide sequence of a stop codon.
10. A chemical for sterilizing explants.

(10 × 1 = 10 marks)

Section B

*Answer at least five questions.**Each question carries 4 marks.**All questions can be attended.**Overall Ceiling 20.*

11. What is an IP address ?
12. Write two salient features of INFLIBNET.
13. Give the names of two protein databases with their uses.
14. What is the significance of *Arabidopsis thaliana* in research ?
15. What is Golden Rice ?

Turn over

16. State 4 differences between DNA and RNA.
17. State two applications of biotechnology in environment management.
18. Define cybridization.
19. What is DNA fingerprinting ?
20. What is the significance of Bt crops ?

(5 × 4 = 20 marks)

Section C

Answer at least five questions.

Each question carries 7 marks.

All questions can be attended.

Overall Ceiling 35.

21. What are mutations ? Describe the different types of mutations.
22. Write a note on the use of genetic sequences in deducing phylogeny.
23. Give a brief account on any one DNA sequencing technique.
24. Differentiate between A, B and Z DNA.
25. Describe the process of transformation in bacteria with an example.
26. Illustrate and elaborate the structure of the tRNA. What are its functions ?
27. What are the health issues related to the use of internet and computers ? Discuss remedies for the same.
28. Write notes on any two methods of gene transfer.

(5 × 7 = 35 marks)

Section D

Answer at least one question.

The question carries 15 marks.

29. Describe the process of DNA replication in prokaryotes with diagrams. Discuss the role of enzymes involved in each step.
30. Discuss the applications of IT in various fields of education and add a note on its future prospects.
31. What is rDNA technology ? Describe the steps involved in the process.

(1 × 15 = 15 marks)

**FIFTH SEMESTER U.G. DEGREE (SPECIAL) EXAMINATION
NOVEMBER 2020**

(CUCBCSS—UG)

Botany

**BOT 5B 07—EMBRYOLOGY, PALYNOLOGY, ECONOMIC BOTANY, ETHNO BOTANY
AND HORTICULTURE**

Time : Three Hours

Maximum : 80 Marks

Section A

*Answer all questions.
Each question carries 1 mark.*

1. Name any *one* natural method of vegetative propagation.
2. Term for the development of a fruit without fertilization.
3. Specify the most common type of ovule in Angiosperms.
4. The branch of Horticulture concerned with the cultivation of trees.
5. Write the botanical name of a millet.
6. Name a biopesticide.
7. Which district of Kerala has the highest number of tribal population ?
8. What is pollinium ?
9. Give the scientific name of cardamom.
10. Name a plant growth hormone.

(10 × 1 = 10 marks)

Section B (Short Answer Questions)

*Answer at least five questions.
Each question carries 4 marks.
All questions can be attended.
Overall Ceiling 20.*

11. What is composting ?
12. Specify the ethnobotanical significance of *Cynodon dactylon*.
13. What is pollen kit substance ?
14. Give names and uses of any two garden tools.

Turn over

15. What is aeropalynology ?
16. Specify the medicinal aspects of *Vinca rosea*.
17. Explain triple fusion.
18. Mention any *two* significance of ethnobotany.
19. What are masticatories ? Give an example.
20. What are the advantages of green house as a plant propagating structure ?

(5 × 4 = 20 marks)

Section C (Short Essay)

*Answer at least five questions.
Each question carries 7 marks.
All questions can be attended.
Overall Ceiling 35.*

21. Write short notes on the structure and dehiscence of anther.
22. With suitable diagrams, explain the structure of a dicot embryo.
23. Give an account of major tribes of south India.
24. Bring out the different types of irrigation employed in horticulture.
25. What is polyembryony ? Explain the causes of polyembryony. Add notes on the causes and different types of polyembryony.
26. Give an account on the major beverage yielding plants you have studied.
27. Explain the role of pollen morphology in plant taxonomy.
28. What is budding ? Explain any *two* types of budding with suitable diagrams.

(5 × 7 = 35 marks)

Section D

*Answer any one question.
The question carries 15 marks.*

29. Give a detailed account of Oyster mushroom cultivation.
30. Explain the different types and mechanisms of pollination.
31. With suitable diagrams, explain the formation of Polygonum type of embryosac found in Angiosperms.

(1 × 15 = 15 marks)

**FIFTH SEMESTER U.G. (CUCBCSS—UG) DEGREE [SPECIAL]
EXAMINATION, NOVEMBER 2020**

Botany

BOT 5B 06—ANGIOSPERM MORPHOLOGY AND PLANT SYSTEMATICS

Time : Three Hours

Maximum : 80 Marks

Section A

*Answer all questions.
Each question carries 1 mark.*

1. Give an example for fibrous root modification.
2. Name the inflorescence of *Tridax*.
3. Where is Royal Botanical Garden situated ?
4. Define Isotype.
5. Name a medicinal plant of Apocynaceae.
6. Expand ICBN.
7. Define Racemose.
8. Which is the characteristic fruit of Poaceae ?
9. An aggregate fruit is one which develops from _____.
10. Name the family with Apocarpous Pistil.

(10 × 1 = 10 marks)

Section B

*Answer at least five questions.
Each question carries 4 marks.
All question can be attended.
Overall Ceiling 20.*

11. Define Folk Taxonomy.
12. Differentiate indented and bracketed keys.
13. Explain effective and valid publication.
14. Give the botanical names of any economically important plants of the family Acanthaceae.

Turn over

15. Define Phenetics.
16. What is a Monograph ?
17. Describe the inflorescence of Asteraceae ?
18. What are pneumatophores ?
19. Describe Hypanthodium.
20. What is Phyllotaxy ? Give examples.

(5 × 4 = 20 marks)

Section C

*Answer at least **five** questions.
Each question carries 7 marks.
All question can be attended.
Overall Ceiling 35.*

21. Write an account on Cymose and special type of inflorescence.
22. Describe the structure of Seed.
23. Write an account on Bentham and Hooker's system classification. Add its merits and demerits.
24. Explain root modifications with suitable examples.
25. Write an account on Taxonomic character.
26. Describe and discuss the concept-flower as a modified shoot.
27. Write an account on Taxonomic literature.
28. Briefly explain the contributions of eminent taxonomists; Hendrich Van Rheed, William Roxburg and G.S. Gamble.

(5 × 7 = 35 marks)

Section D

*Answer at least **one** question.
The question carries 15 marks.*

29. Describe the different types of stem modifications with suitable examples.
30. Write an account on the characters of the families; Annonoaceae. Rubiaceae and Poaceae.
31. Write an account on Recent trends in Taxonomy with special mention on Cytotaxonomy, Chemotaxonomy, Numerical Taxonomy, Molecular Taxonomy and Phylogenetics.

(1 × 15 = 15 marks)

**FIFTH SEMESTER U.G. DEGREE [SPECIAL] EXAMINATION
NOVEMBER 2020**

(CUCBCSS—UG)

Botany

**BOT 5B 05—GYMNOSPERMS, PALAEOBOTANY, PHYTOGEOGRAPHY
AND EVOLUTION**

Time : Three Hours

Maximum : 80 Marks

Section A

Answer all questions.

Each question carries 1 mark.

1. Name the gymnosperm which possess the largest sperm in the living world.
2. The proponent of Mutation theory.
3. A wider land connection between separate areas over which animals and plants are able to cross and colonise new lands.
4. Who proposed Biogenetic law ?
5. A fossil preserved in sedimentary rocks that has undergone physical pressure.
6. A gymnosperm which has pycnoxylic wood.
7. State the plants which were dominant in the Jurassic period.
8. Who disproved Spontaneous generation of organisms for the first time ?
9. Mention the number of phytogeographical regions in India.
10. Define Vicarism.

(10 × 1 = 10 marks)

Section B (Short Answer Questions)

Answer at least five questions.

Each question carries 4 marks.

All questions can be attended.

Overall Ceiling 20.

11. Bring out any *two* significant contributions of Prof. Birbal Sahni.
12. What is Feeder ? In which gymnosperm is it found ?
13. Write notes on Neolamarckism.

Turn over

14. Explain the structure of antherozoid (sperm) of *Cycas*.
15. Explain genetic drift.
16. Explain any *two* distinguishing features of endemic plants.
17. Explain 'shower of sulphur' found in the lifecycle of *Pinus*.
18. "Ontogeny recapitulates phytoeny"—Explain.
19. Bring out Oparin's concept in evolution.
20. What are the advantages of petrified fossils over other types of fossils ?

(5 × 4 = 20 marks)

Section C (Short Essay)

Answer at least five questions.

Each question carries 7 marks.

All questions can be attended.

Overall Ceiling 35.

21. Bring out Sporne's system of classification of gymnosperms.
22. Explain the process of formation of fossils.
23. Describe the internal structure of coralloid root of *Cycas* with suitable diagrams.
24. Give an account of geological time scale with special reference to sequence of plants in geological time.
25. Elaborate the theories of endemism.
26. Give an account of evolution of Archaeobacteria to early fossilized cells.
27. Briefly bring out the patterns of plant distribution. Add notes on migration and extinction of species.
28. What is Speciation ? Explain the isolating mechanisms responsible for speciation. Add notes on the modes of speciation.

(5 × 7 = 35 marks)

Section D (Essay)

Answer at least one question.

The question carries 15 marks.

29. Give an account of the evidences and impact of continental drift theory.
30. Explain the different theories of evolution studied by you.
31. Give an account of the life history of *Gnetum* and indicate the features of resemblance with angiosperms.

(1 × 15 = 15 marks)

FIFTH SEMESTER U.G. DEGREE EXAMINATION, NOVEMBER 2021

(CBCSS—UG)

Botany

BOT 5D 03—BASIC TISSUE CULTURE

(2019 Admissions)

Time : Two Hours

Maximum : 60 Marks

Section A*Answer at least eight questions.**Each question carries 3 marks.**All questions can be attended.**Overall Ceiling 24.*

1. What are the key objectives of plant tissue culture ?
2. Discuss the applications of suspension culture.
3. Explain haploid production and its application.
4. What are the advantages of meristem culture ?
5. What are the minimum requirements for a tissue culture lab ?
6. Describe the embryo rescue techniques.
7. Explain the method of sterilizing thermolabile components.
8. What are the factors affecting somatic embryogenesis.
9. What is Callus ? Discuss its uses.
10. What are the advantages and disadvantages of micropropagation ?
11. What is Totipotency ?
12. What are the applications of synseeds ?

(8 × 3 = 24 marks)

Turn over

Section B

*Answer at least five questions.
Each question carries 5 marks.
All questions can be attended.
Overall Ceiling 25.*

13. Discuss the role of tissue culture in germplasm conservation.
14. Explain Electroporation.
15. What are somatic hybrids ? Explain its applications.
16. Explain the methods of sterilization of explants for tissue culture.
17. What is Cryopreservation ? Explain its applications.
18. Explain the various phases of micropropagation.
19. Discuss the composition of MS medium.

(5 × 5 = 25 marks)

Section C

*Answer any one question.
The question carries 11 marks.*

20. Explain various plant tissue culture technique and its applications.
21. Describe the biological gene transfer techniques and its advantages.

(1 × 11 = 11 marks)

FIFTH SEMESTER U.G. DEGREE EXAMINATION, NOVEMBER 2021

(CBCSS—UG)

Botany

BOT 5D 02—APPLIED BOTANY

(2019 Admissions)

Time : Two Hours

Maximum : 60 Marks

Section A*Answer at least eight questions.**Each question carries 3 marks.**All questions can be attended.**Overall Ceiling 24.*

1. Define seed dormancy. Mention its significance.
2. Enlist two species propagated by stem cuttings.
3. Mention two methods of breaking seed dormancy.
4. Define Humus. Mention its chemical nature and significance.
5. Explain potting, de-potting and repotting.
6. What are organic manures ? Mention their merits over chemical fertilizers.
7. What is meant by *Bonsai* ? Explain its significance.
8. Mention binomial of two earthworms used in vermicomposting.
9. What are Biofertilizers ? Mention two examples.
10. What is meant by mushroom spawn ? Mention two types.
11. Enlist four commercially cultivated orchids.
12. Distinguish cereals and millets with one example for each.

(8 × 3 = 24 marks)

Section B*Answer at least five questions.**Each question carries 5 marks.**All questions can be attended.**Overall Ceiling 25.*

13. Define Budding. Compare T Budding and Patch Budding Write one example for each.
14. Define micro-propagation. Discuss its applications.

Turn over

15. Write note on Biological control of pests and diseases.
16. What are chemical fertilizers ? Mention types and examples. Write note on merits and demerits of chemical fertilizers.
17. Describe cultivation of Oyster mushroom.
18. Explain the technique of Vermicompost production.
19. Give an account on Anthurium cultivation.

(5 × 5 = 25 marks)

Section C

*Answer any one question.
The question carries 11 marks.*

20. Write an essay on Bonsai.
21. Distinguish cereals and millets. Write Botanic name, family and morphology of useful part of Rice and Wheat. What are pulses ? Write Botanic name, family and morphology of useful part of Black gram, Green Gram and Bengal Gram.

(1 × 11 = 11 marks)

FIFTH SEMESTER U.G. DEGREE EXAMINATION, NOVEMBER 2021

(CBCSS—UG)

Botany

BOT 5D 01—GENERAL BOTANY

(2019 Admissions)

Time : Two Hours

Maximum : 60 Marks

Section A*Answer at least eight questions.**Each question carries 3 marks.**All questions can be attended.**Overall Ceiling 24.*

1. Name any *two* alternative source of energy.
2. Differentiate between in situ and ex situ conservation.
3. Differentiate pedicel and petiole.
4. How can you calculate age of a tree ?
5. Define tissue.
6. Differentiate between heartwood and sapwood.
7. Draw a dicot leaf and label the parts.
8. What are the major greenhouse gases in air ?
9. What is commensalism ? Give example.
10. Comment on significance of mitosis.
11. Define mutation ? Give any *two* mutagens.
12. Comment on zygomorphy.

(8 × 3 = 24 marks)

Turn over

Section B

*Answer at least five questions.
Each question carries 5 marks.
All questions can be attended.
Overall Ceiling 25.*

13. Write notes on sex determination in man.
14. Write notes on national parks .
15. Comment on symbiosis and parasitism with suitable examples.
16. Write short notes on growth hormones.
17. Explain the structure of dicot stem with the help of diagram.
18. Explain the different stages of prophase 1 of meiosis 1.
19. Comment on symbiotic nitrogen fixation.

(5 × 5 = 25 marks)

Section C

*Answer any one question.
The question carries 11 marks.*

20. Explain the various types of plant interactions with the help of examples.
21. Define cell cycle ? Explain the various stages of mitosis with suitable sketches.

(1 × 11 = 11 marks)

FIFTH SEMESTER U.G. DEGREE EXAMINATION, NOVEMBER 2021

(CBCSS—UG)

Botany

BOT 5B 09—CELL BIOLOGY AND BIOCHEMISTRY

(2019 Admissions)

Time : Two Hours

Maximum : 60 Marks

Section A*Answer at least eight questions.**Each question carries 3 marks.**All questions can be attended.**Overall Ceiling 24.*

1. Write a note on Nuclear pore complex.
2. What is lamp brush chromosome ?
3. What is Nucleolus ?
4. Describe Chloroplast.
5. Write a note on Golgi complex.
6. Differentiate Haploidy and Polyploidy.
7. What is Co-enzyme ?
8. Write a note on triacyl glycerols.
9. What is zwitter ions ?
10. What is a macromolecule ?
11. Write a note on enzyme regulation.
12. What is peptide bond ?

(8 × 3 = 24 marks)

Turn over

Section B

*Answer at least five questions.
Each question carries 5 marks.sa
All questions can be attended.
Overall Ceiling 25.*

13. Explain organization of interphase Nucleus.
14. Write an account on Cell cycle with special mention on Meiosis.
15. Write an account on architecture of cells-Prokaryotic and Eukaryotic.
16. Write an account on Cytoskeleton-Cytosol and Vacuole.
17. Explain structure and functions of nucleotides.
18. Write an account on enzyme action.
19. Write an account on Amino acids.

(5 × 5 = 25 marks)

Section C

*Answer any one question.
The question carries 11 marks.*

20. Write an account on various cell organelles in Eukaryotic cell. Explain its structure and function.
21. Write an account on structure and biological function of protein.

(1 × 11 = 11 marks)

FIFTH SEMESTER U.G. DEGREE EXAMINATION, NOVEMBER 2021

(CBCSS—UG)

Botany

BOT 5B 08—TISSUE CULTURE, HORTICULTURE, ECONOMIC BOTANY, ETHNO
BOTANY

(2019 Admissions)

Time : Two Hours

Maximum : 60 Marks

Section A

*Answer at least eight questions.**Each question carries 3 marks.**All questions can be attended.**Overall Ceiling 24.*

1. Write a note on Shoot tip culture.
2. What is hardening ?
3. Write an account on advantages of micro-propagation.
4. Write an account on Laminar air flow chamber.
5. Write a note on multiple shoot induction.
6. Explain Layering.
7. What is potting mixture ?
8. Write a note on mushroom cultivation
9. Write an account on precaution methods against pest diseases.
10. Write an account on garden tools and implements.
11. Write a note on fruit plants.
12. Write a note on major tribes of south India.

(8 × 3 = 24 marks)

Section B

*Answer at least five questions.**Each question carries 5 marks.**All questions can be attended.**Overall Ceiling 25.*

13. Write an account on preparation of explants.
14. Explain embryo culture.

Turn over

15. Write an account on *in vitro* secondary metabolite production.
16. Write an account on scope and significance of horticulture.
17. Write an account on pots and potting.
18. Write an account on Masticatories.
19. Write an account on TBGRI Model of Benefit sharing.

(5 × 5 = 25 marks)

Section C

*Answer any one question.
The question carries 11 marks.*

20. Write an account various vegetative propagation methods.
21. Explain different phases of micro-propagation.

(1 × 11 = 11 marks)

CHMK LIBRARY UNIVERSITY OF CALICUT

FIFTH SEMESTER U.G. DEGREE EXAMINATION, NOVEMBER 2021

(CBCSS—UG)

Botany

BOT 5B 07—ANGIOSPERM, MORPHOLOGY AND SYSTEMATICS

(2019 Admissions)

Time : Two Hours

Maximum : 60 Marks

Section A*Answer at least eight questions.**Each question carries 3 marks.**All questions can be attended.**Overall Ceiling 24.*

1. Define Epigynous flower.
2. What is Chemotaxonomy ?
3. What is cyathium inflorescence ?
4. What are monographs ?
5. Differentiate holotype and isotype.
6. Write the peculiarities of typical Lamiaceae flower.
7. What is artificial system of classification ? Give an example.
8. Write an account on Author citation.
9. What is retinaculum ? Name the family in which it is seen.
10. Comment on the distinguishing characters of Annonaceae.
11. Mention the role of Botanical Gardens in Taxonomic studies.
12. Give a brief account on the importance of systematics.

(8 × 3 = 24 marks)

Section B*Answer at least five questions.**Each question carries 5 marks.**All questions can be attended.**Overall Ceiling 25.*

13. Give an account on branching in Solanaceae.
14. "Flower as a modified shoot". Discuss.

Turn over

15. Explain APG system of classification.
16. Briefly explain the contributions of eminent taxonomist EK Janaki Ammal.
17. Give a comprehensive account of dry dehiscent fruits with example.
18. Give an account on the advance characters of Poaceae.
19. Describe the morphology of tendril in Cucur.

(5 × 5 = 25 marks)

Section C

Answer any one question.

The question carries 11 marks.

20. What are the salient features of Orchidaceae ? Very diverse and ingenious methods of pollination are employed by orchid flowers. Discuss.
21. What is herbarium ? Write an essay on herbarium technique and its significance. Mention two major herbaria in India.

(1 × 11 = 11 marks)

FIFTH SEMESTER U.G. DEGREE EXAMINATION, NOVEMBER 2021

(CBCSS—UG)

Botany

BOT 5B 06—GYMNOSPERMS, PALAEOBOTANY, PHYTOGEOGRAPHY AND
EVOLUTION

(2019 Admissions)

Time : Two Hours

Maximum : 60 Marks

Section A*Answer at least eight questions.**Each question carries 3 marks.**All questions can be attended.**Overall Ceiling 24.*

1. Describe the coralloid root of *Cycas*.
2. Distinguish between manoxylic and pycnoxylic wood.
3. Enumerate the fern characters of *Cycas*.
4. Describe the features of the female cone of *Pinus*.
5. List the xerophytic characters of Gymnosperm.
6. What are the objectives of Palaeobotany ?
7. Compare the morphology of the sporophyte of *Rhynia* and *Lepidodendron*.
8. Write a brief note on important Indian Paleobotanical institutes.
9. What is mean by continental drift ? Explain.
10. Explain the theory of land bridges.
11. What is endemism ? Explain with an example.
12. Write a brief note on evolution of prokaryotic cell.

(8 × 3 = 24 marks)

Section B*Answer at least five questions.**Each question carries 5 marks.**All questions can be attended.**Overall Ceiling 25.*

13. Give an illustrated account of the internal structure of the *Pinus* needle and point out its xeromorphic features.

Turn over

14. Explain the economic importance of Gymnosperms.
15. Why the Gymnosperms are considered as connecting link between Pteridophytes and Angiosperms.
16. Define geological time scale and give its dimensions.
17. Define different types of fossils.
18. Give a detailed account of Phytogeographical zones of India.
19. Define the theories on origin and evolution of species.

(5 × 5 = 25 marks)

Section C

Answer any one question.

The question carries 11 marks.

20. With suitable diagram describe and compare the male fructifications of *Cycas*, *Pinus* and *Gnetum*. Discuss the Angiospermic features of *Gnetum*.
21. Write an essay on modes of speciation.

(1 × 11 = 11 marks)

FIFTH SEMESTER U.G. DEGREE EXAMINATION, NOVEMBER 2021

(CUCBCSS—UG)

Botany

BOT 5D 03—BASIC TISSUE CULTURE

Time : Two Hours

Maximum : 40 Marks

Section A*Answer all questions.**Each question carries 1 mark.*

1. Who is the father of tissue culture ?
2. _____ is a commonly used sterilizing agent.
3. Group of genetically similar individuals produced from single explants is called _____.
4. To make free of micro-organisms is called _____.
5. _____ is the entire plant cell without cell wall.
6. The undifferentiated mass of parenchyma cells is _____.
7. _____ is the ideal temperature for incubation of culture.
8. Name the solidifying agent used in preparing a medium.
9. An autoclave is used for _____.
10. Pollen culture is useful in producing _____ plants.

(10 × 1 = 10 marks)

Section B*Answer all the questions.**Each question carries 2 marks.*

11. Differentiate shoot tip culture and meristem culture.
12. Explain cryopreservation and its role in tissue culture.
13. What are artificial seeds ? Explain its significance.
14. Differentiate direct and indirect organogenesis.

Turn over

15. Describe the use of any two equipments used in a tissue culture lab.
16. Explain how disease free plants are produced by micropropagation.
17. Comment on soma clonal variation.
18. Enlist four applications of tissue culture.
19. Write an account on the hormones used in tissue culture.
20. Explain somatic embryogenesis.

(10 × 2 = 20 marks)

Section C

*Answer any two of the following.
Each question carries 5 marks.*

21. Write an account on the different phases of micropropagation.
22. Explain the various aseptic techniques practiced in a tissue culture lab.
23. Give an account on the history of tissue culture.

(2 × 5 = 10 marks)

FIFTH SEMESTER U.G. DEGREE EXAMINATION, NOVEMBER 2021

(CUCBCSS—UG)

Botany

BOT 5D 02—APPLIED BOTANY

Time : Two Hours

Maximum : 40 Marks

Section A*Answer all questions.**1 mark each.*

1. What is the binomial of cardamom ?
2. Name a plant propagated by stem cutting.
3. Edible fleshy fungi are commonly called _____.
4. Name a timber yielding plant.
5. What is the morphology of useful part of cotton ?
6. Give an example for chemical fertilizer.
7. Name the family to which wheat plant belong to.
8. What the binomial of tea plant ?
9. Give an example for tissue culture medium.
10. Name a biopesticide.

(10 × 1 = 10 marks)

Section B (Short Answer Questions)*Answer any ten questions.**2 marks each.*

11. What are advantages of mushroom cultivation ?
12. Define Callus.
13. What is vermi compost ?
14. Write a brief note on orchid cultivation.

Turn over

15. What is patch budding ?
16. Write a brief note on medicinal uses of *Rauwolfia*.
17. Write a note on depotting.
18. Give the composition of potting mixture.
19. What is Layering ?
20. What are Sprinklers ?

(10 × 2 = 20 marks)

Section C (Short Essays)

*Answer any two questions.
5 marks each.*

21. Explain the technique of creating bonsai.
22. What is meant by organic manure ? What are its merits and demerits ?
23. Explain the grafting methods you have studied.

(2 × 5 = 10 marks)

FIFTH SEMESTER U.G. DEGREE EXAMINATION, NOVEMBER 2021

(CUCBCSS—UG)

Botany

BOT 5B 08—GENERAL AND BIOINFORMATICS, INTRODUCTORY BIOTECHNOLOGY
AND MOLECULAR BIOLOGY

Time : Three Hours

Maximum : 80 Marks

Section A

*Answer all questions.
Each question carries 1 mark.*

1. What is totipotency ?
2. Expand PCR.
3. Name a social networking site.
4. What is a Ti Plasmid ?
5. What is a Gene Gun ?
6. What is DDBJ ?
7. What is Central Dogma ?
8. What is Teminism ?
9. Who discovered pBR322 ?
10. Write names of two plant Tissue Culture medium.

(10 × 1 = 10 marks)

Section B

*Answer all questions.
Each question carries 2 marks.*

11. Differentiate between direct and indirect organogenesis.
12. Write a note on Flavr Savr Tomato.
13. What is the significance of Meristem Culture ?
14. What is the role of academic services like INFLIBNET ?

Turn over

15. What is NJCNET ? What is its significance ?
16. What is the FASTA ?
17. Explain role of DNA finger printing in forensics.
18. Explain the structure of pBR322 and its significance.
19. Write a note on edible vaccines.
20. What is a web browser ?

(10 × 2 = 20 marks)

Section C

*Answer any six questions.
Each question carries 5 marks.*

21. Explain the benefits and potential of misuse of Social media site.
22. Explain the effect of green computing.
23. Write a note on BT cotton.
24. Write a note of restriction endonucleases.
25. Explain the principle behind southern blotting.
26. Explain semi conservative replication of DNA.
27. Give an account on 'try' operon regulation when tryptophan is present.
28. Explain the significance of green computing.

(6 × 5 = 30 marks)

Section D

*Answer any two questions.
Each question carries 10 marks.*

29. Explain different types of gene transfer methods.
30. Explain post transcriptional modifications in eukaryotes.
31. What are biological databases ? Explain different types of databases and their uses.

(2 × 10 = 20 marks)

FIFTH SEMESTER U.G. DEGREE EXAMINATION, NOVEMBER 2021

(CUCBCSS—UG)

Botany

BOT 5B 07—EMBRYOLOGY, PALYNOLOGY, ECONOMIC BOTANY, ETHNO BOTANY
AND HORTICULTURE

Time : Three Hours

Maximum : 80 Marks

Section A*Answer all questions.**1 mark each.*

1. Name the type of embryosac development where only one megaspore in a tetrad is functional.
2. Mention the causative agent of Hay fever.
3. Write the botanical name of sugarcane.
4. Which is the largest tribal population of Kerala ?
5. Name a stain commonly employed in pollen viability tests.
6. Specify a chemical fertilizer rich in nitrogen.
7. Name the phenomenon of production of more than one embryo in a single seed.
8. What is Spawn in mushroom cultivation.
9. Mention any *one* alkaloid found in *Rauwolfia serpentina* which is of high medicinal value.
10. Name a biofertilizer.

(10 × 1 =10 marks)

Section B (Short Answer Questions)*Answer all questions.**2 marks each.*

11. Explain the significance of ethnobotany.
12. Specify the ethnobotanical significance of *Aegle marmelos*.
13. Write notes on Acetolysis.
14. What are the advantages of vegetative propagation ?

Turn over

15. Differentiate cereals from millets with suitable examples.
16. What is meant by double fertilization ?
17. Give an account of organic manures.
18. Explain Melitopalynology.
19. What are resins ? Mention a plant yielding resin.
20. Write any two precautions to avoid pests and diseases in horticultural plants.

(10 × 2 = 20 marks)

Section C (Short Essay)

Answer any six questions.

5 marks each.

21. Write the botanical name, morphology of the useful part and families of any five spices you have studied.
22. With suitable diagrams, explain the different types of ovules found in angiosperms.
23. Explain with suitable diagrams, different types of grafting techniques you have studied.
24. Write short notes on pollen viability and pollen storage methods.
25. Give an account of tribal populations in Kerala state.
26. Bring out the significance of polyembryony.
27. What is an endosperm ? Explain the different types of endosperms you have studied.
28. Write notes on selection, care and maintenance of indoor gardening.

(6 × 5 = 30 marks)

Section D (Essay)

Answer any two questions.

10 marks each.

29. Explain the formation of *Allium* and *Adoxa* type of embryosac development.
30. Bring out the scope and significance of Palynology.
31. Write an account of the different plant propagating structures employed in Horticulture.

(2 × 10 = 20 marks)

FIFTH SEMESTER U.G. DEGREE EXAMINATION, NOVEMBER 2021

(CUCBCSS—UG)

Botany

BOT 5B 06—ANGIOSPERM MORPHOLOGY AND PLANT SYSTEMATICS

Time : Three Hours

Maximum : 80 Marks

Part A

*Answer all questions
Each question carries 1 mark.*

1. Which type of inflorescence is found in *Ocimum* plant?
2. A winged achene is known as.
3. Modified tap root which is spherical in shape and tapers sharply at the tip is called?
4. Where is Malabar Botanical Garden situated ?
5. What is hemicyclic flower ?
6. Name two medicinal plants of Solanaceae.
7. What is numerical taxonomy ?
8. What are monographs in taxonomy?
9. Who is the author of the book “the Flora of the Presidency of Madras” ?
10. Accessory covering of certain seeds that commonly develops from the seed stalk, found in both angiosperms and gymnosperms is called _____ .

(10 × 1 = 10 marks)

Part B (Short Answer Type Questions)

*Answer all questions.
Each questions carries 2 marks.*

11. What are the aspects of taxonomic revision ?
12. What is a taxonomic key ?
13. What is effective publication ?
14. On what features cytotaxonomy is based.

Turn over

15. Give the botanical names of any two economically important plants of Rutaceae.
16. Describe synandrous condition.
17. Write the family and scientific name of custard apple.
18. Describe the floral characters of Liliaceae.
19. What is folk taxonomy based on ?
20. What is Pneumatophore ? What is its function ?

(10 × 2 = 20 marks)

Part C (Short Essay)

*Answer any six questions.
Each question carries 5 marks.*

21. Explain the objectives and importance of systematics.
22. Briefly explain the contribution of early taxonomists:Caesalpino and Bauhin
23. Describe the different types of phyllotaxy.
24. Give an account of economic importance of Lamiaceae
25. Describe the different types of stem modifications with suitable examples.
26. Explain adnation in Solanaceae.
27. Briefly explain APG system.
28. Describe the inflorescence in Euphorbiaceae.

(5 × 6 = 30 marks)

Part D (Essay Questions)

*Answer any two questions.
Each question carries 10 marks.*

29. What are the floral characteristics of Poaceae ? Explain economic importance of Poaceae.
30. Why Bentham and Hooker system of classification is called a natural system of classification? Briefly explain the Bentham and Hooker system of classification.
31. Explain the classification of fruits based on morphology with suitable examples.

(2 × 10 = 20 marks)

FIFTH SEMESTER U.G. DEGREE EXAMINATION, NOVEMBER 2021

(CUCBCSS—UG)

Botany

BOT 5B 05—GYMNOSPERMS, PALAEOBOTANY, PHYTOGEOGRAPHY AND
EVOLUTION

Time : Three Hours

Maximum : 80 Marks

Part AI. Answer *all* questions (1 mark each) :

- 1 Coralloid roots of *Cycas* contain symbiotic Cyanobacteria viz. _____.
- 2 _____ is a gymnosperm with vessels in Xylem.
- 3 Polyembryony in *Pinus* occurs due to _____.
- 4 Inverted omega shaped arrangement of vascular tissues is seen in the anatomy of _____.
- 5 What is Lepidocarpon ?
- 6 What is Panthalassa ?
- 7 Define Mass extinction.
- 8 What is meant by great ice age ?
- 9 The phenomenon of origin of simple organisms from complex ancestors is called.
- 10 What are living fossils ?

(10 × 1 = 10 marks)

Part BII. Answer *all* questions. Short answer (2 marks each) :

- 11 Explain the role of mutations in evolution.
- 12 Distinguish homology and analogy with examples.
- 13 Describe the male cone of *Pinus*.
- 14 Explain the anatomical features of *Rhinia* aerial stem.

Turn over

- 15 Explain continental drift hypothesis.
- 16 Define transfusion tissue. Mention where it is seen.
- 17 Describe the process of fertilization in *Cycas*.
- 18 Define Phytogeography. Mention its significance.
- 19 Define Ecological amplitude. Mention its significance.
- 20 Explain Industrial melanism.

(10 × 2 = 20 marks)

Part C

III. Answer any *six* questions. Short essays (5 marks each) :

- 21 Define Fossilization. Write notes on different types of fossils.
- 22 Explain the anatomy of *Pinus* needle. Write note on its ecological adaptations.
- 23 Enlist and explain the gymnosperm and angiosperm characters of *Gnetum*.
- 24 Make a Comparison of strobili of *Cycas* and *Gnetum*.
- 25 Describe Miller and Urey experiment and discuss the results.
- 26 Explain endemic distribution. Mention types. Explain hypotheses of endemism.
- 27 Give an account of Continuous and discontinuous distribution of plants.
- 28 Define Speciation. Describe the two mechanisms of speciation.

(6 × 5 = 30 marks)

Part D

IV. Answer any *two* questions. Essays (10 marks each) :

- 29 Explain the life cycle of *Cycas*.
- 30 Write an essay on Phytogeographic zones of India.
- 31 Define organic evolution. Write an essay on evidences of organic evolution.

(2 × 10 = 20 marks)