1B6A24260

(Pages : 1)

Reg. No:.....

Name: .....

FAROOK COLLEGE (AUTONOMOUS), KOZHIKODE

Sixth Semester B.Sc Botany Degree Examination, April 2024

BBT6B10 - Genetics & Plant breeding

(2019 Admission onwards)

Time: 2 hours

Max. Marks : 60

SECTION A

(Answer all questions, each question carries 2 marks. Ceiling: 20 Marks)

1. Write the characteristics of quantitative inheritance.
2. What are lethal genes? Explain.
3. Differentiate between test cross and back cross.
4. Write short notes on mutation breeding.
5. Differentiate between phenotype and genotype.
6. Write an account on plant genetic resources.
7. What is inbreeding depression?
8. Define Hardy-Weinberg Law.
9. What is incomplete dominance? Write an example.
10. Write an account on plant introduction.
11. What is extra nuclear inheritance?
12. Write short notes on linkage.

SECTION B

(Answer all questions, each question carries 5 marks. Ceiling: 30 Marks)

13. Briefly describe the procedures of polyploidy breeding.
14. What is complementary gene action? Explain with suitable example.
15. Explain law of independent assortment with an example.
16. Describe steps involved in hybridization programme.
17. Explain co-dominance with an example.
18. Define plant breeding. Briefly describe various objectives of plant breeding
19. Explain the interaction found in self sterility in *Nicotiana.*

SECTION C

(Answer any one question, each question carries 10 marks. 1 x 10 = 10 Marks)

20. What is selection? Explain the selection methods used in plant breeding.
21. Define epistasis? Explain dominant and recessive epistasis with examples.

9

1B6A24261 (Pages : 1) Reg. No:.....

Name: .....

FAROOK COLLEGE (AUTONOMOUS), KOZHIKODE

Sixth Semester B.Sc Botany Degree Examination, April 2024

BBT6B11- Biotechnology, Molecular Biology & Bioinformatics

(2019 Admission onwards)

Time: 2 hours Max. Marks : 60

Section A

(Answer all questions, each question carriers 2 marks. Ceiling 20 marks)

1. What is Golden rice?
2. Write a short note on the role of superbug in bioremediation
3. Importance of restriction endonuclease in rDNA technology
4. Give an account on Gene library
5. Properties of Z-from of DNA
6. Differentiate recon and muton
7. Define Teminism
8. What is substitution mutation?
9. Importance of green computing
10. Expand PDB
11. Write an account on Rasmol
12. Relevance of Human Genome Project

Section B

(Answer all questions, each question carriers 5 marks. Ceiling 30 marks)

13. Explain the structure and applications of pBR322
14. Describe the applications of biotechnology in agriculture
15. What is a genetic code? Give its characteristic features.
16. Explain the Watson and Crick model of DNA
17. Write an account on Nucleotide sequence databases
18. Give the applications of IT in teaching, learning and research
19. Explain Sanger's method of DNA Sequencing

Section C

(Answer any one question, each question carriers 10 marks. 1×10=10 marks)

20. Explain different gene transfer mechanisms in plants
21. Describe the semi conservative method of DNA replication

1B6A24262 (Pages : 1) Reg. No:.....

Name: .....

FAROOK COLLEGE (AUTONOMOUS), KOZHIKODE

Sixth Semester B.Sc Botany Degree Examination, April 2024

BBT6B12- Plant Physiology & Metabolism

(2019 Admission onwards)

Time: 2 hours Max. Marks : 60

SECTION A

(Answer all questions each question carries 2 marks. Ceiling: 20 marks)

1. What do you mean by anti-transpirants? Give examples.
2. Differentiate between diffusion pressure and diffusion pressure deficit.
3. What are the deficiency symptoms of Iron in plants?
4. What is facilitated diffusion?
5. Define quantasomes.
6. Briefly explain light reaction.
7. Why phloem loading is an active process.
8. Explain the leaf movement of *Mimosa pudica*.
9. Define phytochrome-mediated photomorphogenesis.
10. What is terminal oxidation?
11. Define transamination.
12. What do you mean by chemi osmotic hypothesis?

SECTION B

(Answer all questions each question carries 5 marks. Ceiling: 30 marks)

13. What is water potential? Discuss different components.
14. Discus the transpiration pulls and cohesive forces of water molecules in the ascent of sap.
15. 'Photorespiration is a disadvantage of C3 plants'. Justify.
16. How Pressure flow hypothesis help for the translocation of photo assimilate?
17. Compare the physiological roles of Auxin and Ethylene.
18. What do you mean by anapleurotic reactions and amphibolic pathways? Give examples.
19. Illustrate the EMP pathway.

SECTION C

(Answer any one question. Each question carries 10 marks. 1 x 10 = 10 Marks)

20. Explain the oxidative phosphorylation and ETC in mitochondria.
21. Discuss the symbiotic nitrogen fixation in Leguminous plants.

1B6A24263

(Pages : 1)

Reg. No:.....

Name: .....

FAROOK COLLEGE (AUTONOMOUS), KOZHIKODE

Sixth Semester B.Sc Botany Degree Examination, April 2024

BBT6B13 - Environmental Science

(2019 Admission onwards)

Time: 2 hours

Max. Marks : 60

SECTION A

(Answer all questions, each question carries 2 marks. Ceiling:20 Marks)

1. In halophytes, viviparous germination is a crucial adaption. Justify
2. Distinguish between Net Primary Productivity and Gross Primary Productivity.
3. What are the abiotic factors in an ecosystem ?
4. List any four threats that biodiversity faces.
5. Provide two examples of endangered species.
6. Red Data Book: What is it?
7. What is AQI, what are the various parameters.
8. Write a note on BOD
9. Give two examples for non biodegradable pollutants
10. Provide two examples of lentic ecosystems.
11. Write any two sampling methods used in plant community studies.
12. Name any two types of forest ecosystems found in India.

SECTION B

(Answer all questions, each question carries 5 marks.Ceiling:30 Marks)

13. Describe causes and effects of noise pollution.
14. Give a brief description of two organizations involved in biodiversity conservation
15. Describe the morphological and anatomical adaptations in hydrophytes.
16. Give an account on a) Keystone species b) Flagship species.
17. Describe El Niño and its effects.
18. Describe the various stages of xerosere.
19. Describe a) importance value index b) phytographs.

SECTION C

(Answer any one question, each question carries 10 marks.1×10=10 Marks)

20. Write an essay on biogeochemical cycles with special reference to nitrogen cycle.
21. Write a detailed account on various methods of biodiversity conservation.

12

1B6A24264 (Pages : 1) Reg. No:.....

Name: .....

FAROOK COLLEGE (AUTONOMOUS), KOZHIKODE

Sixth Semester B.Sc Botany Degree Examination, April 2024

BBT6B14(E1) - Genetic Engineering

(2019 Admission onwards)

Time: 2 hours Max. Marks : 60

SECTION A

(Answer all questions, each question carries 2 marks. Ceiling : 20 marks)

1. What are genetically engineered crops, cite two examples, with a note on their modified traits
2. What is cDNA library? Explain its relevance
3. What is the importance of PCR
4. Explain chromosome walking
5. What are the functions of alkaline phosphatases.
6. Define restriction enzymes and cite an example.
7. What are DNAse inhibtors?
8. What is CTAB. Mention the use.
9. What are the buffers used in electrophoresis of nucleic acids
10. What is meant by knock out models
11. Plasmids are good cloning vectors, justify.
12. Explain the relevance of gene therapy

SECTION B

(Answer all questions, each question carries 5 marks. Ceiling : 30 marks)

13. Write the essential features of cloning vector.
14. Explain fluorescence insitu hybridization
15. Describe RNAi technology and its applications
16. Explain the procedure of DNA isolation.
17. Describe Real time PCR
18. Briefly describe the different blotting techniques.
19. Write a note on ethical and legal issues, associated with rDNA technology.

SECTION C

(Answer any one question, each question carries 10 marks. 1 x 10 = 10 marks)

20 Describe the construction of a genomic library. What are the applications?

21. Explain the various methods of gene transfer into eukaryotic cells.