30

1B6A22010 (Pages : 2) Reg. No:.....

Name: .....

FAROOK COLLEGE (AUTONOMOUS), KOZHIKODE

Sixth Semester B.Sc Botany Degree Examination, April 2022

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. Explain the genetics of ABO blood grouping.
2. Define test cross. How it is useful in genetic studies?
3. What are lethal genes?
4. What is inbreeding depression?
5. Differentiate between gene and allele.
6. How the selection of pea plants helped Mendel in his experiments?
7. What are polyploids? How they can be induced?
8. Give a note on ICAR and its significance.
9. How pure lines are produced? Cite its advantages.
10. What is interference?
11. Define heterosis.
12. With one example, explain intergeneric hybridization.

SECTION B

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

13. Explain Mendelian laws.
14. What is clonal selection? Explain its advantages
15. What is epistasis? Explain recessive epistasis with one example.
16. Explain the genetics of shell coiling in snails .
17. Explain complementary gene action with examples.
18. Discuss the steps involved in mutation breeding. Mention its advantages.
19. Explain self sterility in *Nicotiana*.

SECTION C

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

20. Explain hybridization? Discuss the steps involved and merits of hydridization?

21. What are allelic interactions? Explain co-dominance with example?

1B6A22011 (Pages : 1) Reg. No:.....

Name: .....

FAROOK COLLEGE (AUTONOMOUS), KOZHIKODE

Sixth Semester B.Sc Botany Degree Examination, April 2022

BBT6B11 - Biotechnology, Molecular Biology & Bioinformatics

(2019 Admission onwards)

Time: 2 hours Max. Marks : 60

SECTION A

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

1. Write notes on any two phage derived vectors.
2. What is Teminism?
3. Explain the relevance of *Arabidopsis* sequencing project.
4. Define gene library.
5. Briefly explain edible vaccines with examples.
6. What is Z - DNA?
7. Explain the concept of collinearity in gene expression.
8. What is bio computing?
9. Differentiate wet lab from web lab.
10. What are missense mutations?
11. What are phylogenetic trees? Give an example
12. Mention the applications of genetic engineering in bioremediation.

SECTION B

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

13. Briefly explain the characteristics of genetic code.
14. What are vectors? Explain the salient features of vectors, with examples.
15. Explain the different types of sequence alignments.
16. Explain the molecular mechanism of base pair substitution mutations.
17. Enumerate the steps in PCR.
18. Explain the procedure involved in Sanger sequencing.
19. Write notes on different gene transfer methods for obtaining genetically engineered plants.

SECTION C

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

20. Explain the steps in translation. Add a note on post translational modifications of proteins.
21. What are databases? With the help of suitable examples, explain the different types of nucleotide databases.

1B6A22012 (Pages : 1) Reg. No:.....

Name: .....

FAROOK COLLEGE (AUTONOMOUS), KOZHIKODE

Sixth Semester B.Sc Botany Degree Examination, April 2022

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 is the role of ethylene in plants?
2. What is redox potential? Why is it important?
3. What is turgor pressure?
4. What are antitranspirants?
5. Differentiate between simple and facilitated diffusion.
6. What are nif genes?
7. What is vernalization?
8. What is photomorphogenesis?
9. Write down the significances of CAM pathway.
10. What is an anapleurotic reaction? Write an example.
11. What is phosphorescence?
12. What is phloem loading and unloading?

SECTION B

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

13. Enumerate the properties of water.
14. Elaborate the fate of pyruvate under anaerobic condition.
15. Explain oxidation of fatty acids.
16. Explain biosynthesis of triglycerides.
17. How is the active absorption of mineral ions take place in plants? Explain.
18. Comment on amphibolic nature of citric acid cycle.
19. Comment on the physiological effects of phytochromes.

SECTION C

(Answer any one questions, each question carries 10 marks. 1x10=10 marks)

20. Write an essay on different types of plant movements with examples.
21. Explain Hatch and Slack pathway and compare it with Calvin cycle.

33

1B6A22013 (Pages : 1) Reg. No:.....

Name: .....

FAROOK COLLEGE (AUTONOMOUS), KOZHIKODE

Sixth Semester B.Sc Botany Degree Examination, April 2022

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. Velamen roots is an important adaptation in epiphytes. Justify.
2. Differentiate between grazing and detritus food chains.
3. Distinguish between primary and secondary productivity.
4. Write any four threats to biodiversity.
5. Write any two examples for endangered species.
6. What is Red data book?
7. List any two devices used to control particulate air pollutants.
8. List any two methods used to control noise pollution.
9. List any two harmful effects of thermal pollution.
10. Write any two examples for lentic ecosystems.
11. Write any two sampling methods used in plant community studies.
12. Write the names of any two types of forest ecosystems found in India.

SECTION B

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

13. Describe the causes and effects of water pollution.
14. Describe the major adaptations of hydrophytes.
15. Describe Megadiversity nations and hotspots.
16. Give an account on a) Keystone species b) Flagship species.
17. Describe El Niño and its effects.
18. Describe the harmful effects of enhanced green house effect.
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 ecological succession with special reference to xerosere.
21. Write an essay on *in situ* and *ex situ* methods of conservation.

1B6A22014 (Pages : 1) Reg. No:.....

Name: .....

FAROOK COLLEGE (AUTONOMOUS), KOZHIKODE

Sixth Semester B.Sc Botany Degree Examination, April 2022

BBT6B14(E1) - Genetic Engineering

(2019 Admission onwards)

Time: 2 hours Max. Marks : 60

SECTION A

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

1. Briefly explain removal of proteins from cell homogenate by Marmur method.
2. Write any commercially available kits for DNA isolation.
3. Write any buffers used electrophoresis.
4. What is cloning vectors? Write any examples.
5. What is cDNA library.
6. Comment on chromosome walking.
7. What do you mean by shuttle vectors?
8. What is microprojectiles?
9. What do you mean by radioactive labelling?
10. Explain Northern blot transfer of nucleic acids.
11. What is DNA gun?
12. Write on knock out models.

SECTION B

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

13. Explain protocol for small scale and large scale preparation of plasmid DNA.
14. Give an account on Southern blot hybridization.
15. Explain enzymes involved in recombinant DNA technology.
16. Write any two methods usually used to select recombinants.
17. Explain social and legal issues in connection with rDNA technology.
18. Write on transgenic animals with any example.
19. Write on site directed mutagenesis.

SECTION C

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

20. Write an essay on isolation and purification of RNA.
21. Explain procedure and applications of Agarose gel electrophoresis of both DNA and RNA.