2B6A23010

(Pages : 1)

Reg. No:.....

Name: .....

FAROOK COLLEGE (AUTONOMOUS), KOZHIKODE

Sixth Semester B.Sc Botany Degree Examination, April 2023

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. What is chiasma? Write a short note on its significance.
2. What is maternal effect?
3. Define hybrid vigour. How it is useful in hybridization?
4. Differentiate between epistatic and hypostatic genes?
5. Explain dihybrid cross.
6. What is back cross?
7. Explain monogenic inheritance?
8. What is acclimatization?
9. How genetically modified crops becomes an inevitable part in our life?
10. What is incomplete dominance? Give one example.
11. Explain meiotic crossing over.
12. What is emasculation?

SECTION B

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

13. With suitable examples, explain interspecific hybridization.
14. With one example explain trihybrid cross.
15. What is extra - nuclear inheritance? Describe the plastid inheritance in *Mirabilis*.
16. Define quantitative character. Briefly explain its inheritance.
17. What are lethal genes? Explain their inheritance with one example.
18. Explain the steps involved in disease resistance breeding.
19. Explain Hardy-Weinberg principle?

SECTION C

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

20. Explain multiple allelism with suitable examples.
21. Explain the various types of selection and its advantages.

2B6A23011

(Pages : 1)

Reg. No:.....

Name: .....

FAROOK COLLEGE (AUTONOMOUS), KOZHIKODE

Sixth Semester B.Sc Botany Degree Examination, April 2023

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. What is Ti plasmid? How can this be used in gene transfer?
2. Write notes on Rasmol.
3. What is a nonsense mutation?
4. Define gene banks.
5. Write notes on Bt crops.
6. What is reverse transcription?
7. Expand INFLIBNET? Mention its role in teaching and research fields.
8. What are the applications of artificial intelligence?
9. Differentiate pairwise and multiple sequence alignments.
10. What are minor RNAs? Give an example.
11. What are the different types of DNA?
12. What is electroporation?

SECTION B

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

13. Define open access initiatives. Add a note on the advantages.
14. Explain the application of biotechnology in medicine with the help of examples.
15. Explain the different types of protein sequence databases with examples.
16. Explain Southern Blotting.
17. Explain the process of computer aided drug designing.
18. Explain the structure of tRNA.
19. What is DNA fingerprinting? Enumerate the steps involved.

SECTION C

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

20. Explain the molecular mechanism of DNA replication. Add a note on the experiment to prove the semiconservative nature of DNA replication
21. What are vectors? With the help of suitable examples, explain the different types of vectors used in genetic engineering and their salient features.

2B6A23012

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

Name: .....

FAROOK COLLEGE (AUTONOMOUS), KOZHIKODE

Sixth Semester B.Sc Botany Degree Examination, April 2023

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. Differentiate between osmosis and diffusion
2. What are antitranspirants?
3. Differentiate between simple and facilitated diffusion.
4. What is the reason of red drop?
5. What is RUBISCO? What does it do in photosynthesis?
6. What is the role of ethylene in plants?
7. Write any four factors affecting respiration.
8. Comment on electron carriers functioning as multienzyme complexes.
9. Write examples of anabolism and catabolism.
10. What is a seismonastic movement? Write an example.
11. What are the assimilatory powers? Why are they called so?
12. Comment on water potential.

SECTION B

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

13. Explain about the K^+ ion mechanism of guard cell movement
14. How do plants serve as the link between the atmosphere and soil?
15. Describe ecological significance of C4 and CAM pathway.
16. What is pressure flow hypothesis?
17. Explain the biochemistry of nitrogen fixation.
18. Comment on the physiological effects of phytochromes.
19. What are the types of seed dormancy?

SECTION C

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

20. Explain about the fate of pyruvate under aerobic and anaerobic conditions.
21. Write an essay on photosynthetic electron transport and photophosphorylation.

2B6A23013

(Pages : 1)

Reg. No:.....

Name: .....

FAROOK COLLEGE (AUTONOMOUS), KOZHIKODE

Sixth Semester B.Sc Botany Degree Examination, April 2023

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. Define food web.
2. Decomposers play an important role in the ecosystem. Justify
3. Identify trophic levels of primary carnivores and primary consumers.
4. What are indigenous species?
5. What are exotic species?
6. Write the names of any two biodiversity hotspots in India.
7. List any two world organizations working in the regulation of greenhouse gases emission.
8. List any two advantages of phytotechnologies used in pollution control.
9. List any two chemicals found in acid rain.
10. Write any two examples for lotic ecosystems.
11. Define estuary.
12. List any two methods to determine the minimum desirable size of the quadrats.

SECTION B

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

13. Give an account on adaptations of xerophytes.
14. Describe Carbon cycle.
15. Describe a) KSBB b) WWF
16. Describe a) Endangered species b) Endemic species.
17. Describe the sources, effects and control measures of air pollution.
18. Describe biomagnification.
19. Describe transect methods used in plant community studies.

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 hydrosere.
21. Write an essay on Global environmental changes

2B6A23014

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

Name: .....

FAROOK COLLEGE (AUTONOMOUS), KOZHIKODE

Sixth Semester B.Sc Botany Degree Examination, April 2023

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 Kirby method.
2. What is CTAB?
3. What is gel staining?
4. Write the principle of electrophoresis
5. Distinguish between BACs and PACs.
6. Explain genomic DNA library.
7. What is microinjection.
8. What is transduction?
9. Briefly explain electro elution of DNA.
10. Explain Southern blot transfer of nucleic acids.
11. Comment on RNA probes.
12. Write on Agro bacterium based vectors.

SECTION B

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

13. Explain different methods used for DNA isolation.
14. Give details on Northern blot hybridization.
15. Write on any two cloning vectors with their features.
16. Write any two methods used to transfer rDNA into the host.
17. Write on transgenic plants and their features. Cite any example.
18. Explain RNAi technology.
19. Write on different applications of rDNA technology.

SECTION C

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

20. Explain different mechanisms of gene transfer into eukaryotic cells.
21. Give an account on preparation and labelling of probes for various kinds of hybridization techniques.