

FAROOK COLLEGE (AUTONOMOUS), KOZHIKODE
Sixth Semester B.Sc Botany Degree Examination, April 2025

BBT6E04 - Agronomy and Entrepreneurship

(2022 Admission onwards)

Time: 2 hours

Max. Marks : 60

SECTION A

(Answer all questions, each question carries 2 marks; ceiling 20 Marks)

1. Define an entrepreneur. What are the basic qualities of an entrepreneur?
2. What is pasteurization? Mention its significance.
3. List any four value-added food products made from dairy.
4. Define nursery management and mention its importance.
5. What are biofertilizers? Give two examples.
6. What is seed dormancy? Mention two methods to break dormancy.
7. Define olericulture. Mention two types of vegetable growing.
8. Name any two Solanaceous vegetables and their common pests.
9. Mention two advantages of drip irrigation.
10. What is hydroponics? Mention its types.
11. What do you mean by fertigation? What are its advantages?
12. What is spawn production in mushroom cultivation?

SECTION B

(Answer all questions, each question carries 5 marks; ceiling 30 Marks)

13. Discuss the role of Kudumbasree projects and Self-Help Groups in entrepreneurship.
14. Explain the principles of food preservation.
15. Describe the preparation of compost by aerobic and anaerobic methods.
16. Explain the cultural practices of any two Cucurbitaceous vegetables.
17. Discuss the scope of floriculture in Kerala.
18. Explain the methods of setting up terrariums.
19. Describe the process of mushroom cultivation using paddy straw.

SECTION C

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

20. Elaborate on the types of irrigation techniques and their importance in horticulture.
21. Describe the processing, storage and marketing of Cardamom, Coconut and Rice

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BBT6B13 - Environmental Science

(2022 Admission onwards)

Time: 2 hours

Max. Marks : 60

SECTION A

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

1. Compare the energy flow of the ecosystem and first law of thermodynamics
2. Define NPP
3. Briefly describe the characteristics of Climax community
4. What do you mean by a RET species?
5. What do you mean by Ramsar sites?
6. What is a Keystone species ?
7. What is Biomagnification ? Give example.
8. What is Acid rain?
9. Comment on Rio-earth summit- Agenda 21
10. Differentiate between Autecology and Synecology
11. Write a brief account on Importance Value Index
12. What is a Quadrat?

SECTION B

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

13. Describe the morphological, anatomical and physiological adaptations of Hydrophytes.
14. Explain Carbon cycle with schematic diagram.
15. Describe Water pollution explaining its sources, effect and control measures.
16. Briefly explain about the estuarine ecosystem.
17. Why is India considered as a mega-diversity nation?
18. Briefly explain the role of greenhouse gases in Global warming.
19. How do you apply the technique of remote sensing in Environmental studies?

SECTION C

(Answer anyone question, each question carries 10 marks. 1x10=10 Marks)

20. Write a short note on *ex-situ* and *in-situ* strategies for Biodiversity conservation.
21. What is plant succession? Describe various stages involved in Hydrosere.

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BBT6B12 - Plant Physiology & Metabolism,

(2022 Admission onwards)

Time: 2 hours

Max. Marks : 60

SECTION A

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

1. Discuss the chief organ of Water absorption.
2. Differentiate between Symplastic and Apoplastic pathway
3. What are the deficiency symptoms of Phosphorus and Nitrogen in plants?
4. What do you mean by Micronutrients? Give examples.
5. Define PSU (Photosynthetic Unit)
6. Briefly explain the Hill reaction.
7. Briefly explain Nitrogen Fixation by free-living nitrogen fixers.
8. Explain the Sleeping movement of *Mimosa pudica*.
9. Write a short note on Day-Neutral Plants. Give example.
10. Write any two significances of Glycolysis.
11. What is Terminal Oxidation?
12. Discuss the NADH dehydrogenase complex.

SECTION B

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

13. Discuss Cohesion-Tension Theory.
14. What are Macronutrients? Explain their Physiological Role and Deficiency Symptoms.
15. Illustrate CAM metabolism.
16. Compare the Physiological roles of Auxin and Gibberellin.
17. Illustrate the Glycolytic pathway.
18. What do you mean by Anapleurotic reactions and Amphibolic pathways? Give examples.
19. Explain the mechanism of phloem transport.

SECTION C

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

20. 'Photorespiration' is a disadvantage of C3 plants. Justify.
21. What is Seed dormancy? What are the factors affecting seed dormancy? What are the methods to overcome seed dormancy?

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BBT6B11 - Biotechnology, Molecular Biology & Bioinformatics
(2022 Admission onwards)

Time: 2 hours

Max. Marks : 60

SECTION A

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

1. Comment on Ti plasmid as a vector
2. Differentiate between A and B type of DNA
3. Write notes on Species 2000
4. Expand GEAC
5. Explain One cistron one polypeptide hypothesis
6. What is Teminism?
7. Comment on computer aided drug design.
8. Write note on genebanks.
9. Discuss the relevance of Human genome project
10. What is the role of restriction endonucleases in recombinant DNA technology? Give two examples of the restriction enzymes.
11. Explain the difference between Transversion and substitution
12. Write notes on Comparative genomics

SECTION B

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

13. Write notes on Phylogenetic trees. Bring out the differences between rooted and unrooted trees.
14. What are the different methods of gene transfer?
15. Explain the post transcriptional modifications of mRNA.
16. Describe the Sanger method of DNA sequencing
17. What is PCR? Explain the various steps in PCR.
18. Explain the inducible and repressible operon models with suitable examples
19. How can you predict the structure of proteins using bioinformatics?

SECTION C

(Answer ANY ONE question. Each question carries 10 marks. 1 x 10 =10 Marks)

20. DNA replication is semi conservative- Explain. Add note on the molecular mechanism of DNA replication.
21. Write an essay on biological databases with special emphasis on primary and secondary nucleotide databases.

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BBT6B10- Genetics & Plant breeding

(2022 Admission onwards)

Time: 2 hours

Max. Marks : 60

SECTION A

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

1. Enumerate the characteristic features of quantitative inheritance.
2. What is the difference between a two-point and three-point test cross?
3. Differentiate between complete and incomplete linkage.
4. Explain Hardy- Weinberg equilibrium and the factors affecting it.
5. Give a short account on the methods and applications of resistance breeding.
6. What is heterosis? Explain the genetic basis.
7. What is the difference between interspecific and intraspecific hybridization?
8. What are complementary genes? Give an example.
9. List three roles of ICAR in advancing plant breeding in India.
10. State the law of independent assortment.
11. Explain lethal genes with an example.
12. Explain the inheritance of coat colour in rabbits.

SECTION B

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

13. Give an account of the procedure of hybridization.
14. With the help of a checker board explain the inheritance of sickle cell anaemia.
15. Describe extra nuclear inheritance with suitable example.
16. Explain the genetics of inheritance of Fruit colour in summer squashes.
17. Give an account of mutation breeding. Add a note on its merits and demerits.
18. Differentiate the terms dominance, co-dominance, incomplete dominance citing suitable examples.
19. Explain the various steps involved in pure line selection.

SECTION C

(Answer any one question, each question carries 10 marks. 1 X10 = 10 marks)

20. Explain the different types of selection employed in plant breeding ? Mention their merits & demerits.
21. Explain the pattern of polygenic inheritance with suitable examples. Add a note on its characteristic features.