

B6M19241

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Reg. No:.....

Name:

FAROOK COLLEGE (AUTONOMOUS), KOZHIKODE
Sixth Semester B.Sc Botany Degree Examination, March /April 2019
BOT6B09T – Genetics & Plant Breeding
(2016 Admission onwards)

Time: 3 hours

Max. Marks: 80

PART- A
Answer ALL the questions

Define/ Explain

1. Epistasis
2. Heterosis
3. Co dominance.
4. Heterozygosity
5. Y-linked inheritance
6. Criss Cross inheritance.
7. GM crops.
8. Allopolyploid
9. ICAR
10. Quarantine regulations.

(10 x 1 = 10 marks)

PART B
Answer ALL the questions

11. Explain the components of plant genetic resources
12. What are lethal genes, explain
13. Cite few achievements of mutation breeding.
13. Explain the use of colchicine in plant breeding in developing successful varieties.
14. Write notes on coincidence and interference?
15. Write notes on genetics of heterosis.
16. Explain the reasons for Mendel's success while working with pea plants
17. Define Hardy-Weinberg law?
18. What are the modified ratios due to epistasis?
19. How does Klinefelter syndrome result?
20. What is vertical resistance?

(10 x 2 = 20 marks)

PART C

Answer any SIX of the following:

21. What is inbreeding depression? Explain its characteristics.
22. Explain the inheritance of eye color in *Drosophila*.
23. What are the different types of layering?
24. Briefly explain genetic engineering and products of genetically modified crops.
25. What is the importance of linkage and crossing over?
26. Explain chromosomal basis of sex determination with suitable examples.
27. Explain the phenomenon of multiple allelism with examples.
28. Explain extranuclear inheritance

(6 x 5 = 30 marks)

PART D

Answer any TWO of the following:

29. Describe the methods and types of hybridization, utilized in plant breeding and the achievements made
30. Explain the derivation of Mendelian laws and ratios with suitable crosses, with a brief note on the modified ratios
31. Explain quantitative inheritance with examples

(2 x 10 = 20 marks)

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Name:

FAROOK COLLEGE (AUTONOMOUS), KOZHIKODE

Sixth Semester B.Sc Botany Degree Examination, March /April 2019

BOT6B10T – Plant Physiology & Metabolism

(2016 Admission onwards)

Time: 3 hours

Max. Marks: 80

PART - A**(Answer all questions)**

1. Diffusion through plasmodesmata and plasma membrane is called as _____ pathway
2. _____ is a metabolic Antitranspirant
3. The light intensity at which rates of respiration and photosynthesis are equal is called as _____
4. The only membrane-bound enzyme in the citric acid cycle is _____
5. The only enzyme that participates in both the citric acid cycle and the electron transport chain is _____.
6. Who proposed Ion exchange theory of stomatal movements?
7. Which is the electron donor in Non-cyclic Electron transport system?
8. Name the genes involved in the Nitrogen fixation
9. Which are the precursors of Fatty acid biosynthesis?
10. Which are the Hydrogen carriers of respiratory chain?

(10 × 1 = 10 marks)**PART - B****(Answer all questions)**

11. Comment on Ascent of sap
12. Add notes on simple and facilitated diffusion of mineral elements
13. Describe Kranz anatomy
14. Elucidate Red drop effect
15. Explain the mechanism of Phototropism
16. What is nitrate assimilation?
18. What does it mean by first committed step of Glycolysis?
19. Differentiate between ketogenic and glucogenic amino acids
20. Describe Oxidative phosphorylation

(10 × 2 = 20 marks)

PART - C
(Answer any six of the following)

21. Explain mechanism of stomatal movements.
22. Describe the transpiration pull and cohesion of water theory
23. Elucidate the process of Photorespiration
24. Explain the factors effecting photosynthesis
25. Describe biosynthesis of amino acids.
26. Describe amphibolic nature of Citric acid cycle
27. Describe Glyoxylate cycle
28. Explain the organization of respiratory chain

(6 × 5 = 30 marks)

PART - D
(Answer any two of the following)

29. Describe steps in CAM pathway. Explain ecological significance of C₄ and CAM pathways.
30. Explain Cyclic and Non-cyclic electron transport and Photophosphorylation
31. Describe the process of β-oxidation of fatty acids

(2 × 10 = 20 marks)

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Name:

FAROOK COLLEGE (AUTONOMOUS), KOZHIKODE
Sixth Semester B.Sc Botany Degree Examination, March /April 2019
BOT6B12T – Environmental Science
(2016 Admission onwards)

Time: 3 hours

Max. Marks: 80

Part A

Answer all questions

1. Father of Indian ecology.
2. The sum total of the radiant energy fixed by producers is known as
3.is an example for secondary pollutant.
4. The excrement deposits of fish eating sea birds is
5. is an obligate stem parasite.
6.represent the pioneer community of xerosere.
7. The hygroscopic and photosynthetic hanging aerial roots produced by epiphytes are called.....
8.is a national park in India.
9.is a neurological disorder caused by severe mercury poisoning.
10. The species that are likely to become endangered in the near future is.....

(10 x1=10 marks)

Part B

Answer all questions

11. Distinguish between autecology and synecology
12. Flagship species
13. Ecological adaptations of halophytes.
14. Microbes involved in nitrogen cycle.
15. Comment on KSBDB
16. Write notes on Holoparasites.
17. What are biodiversity hotspots.
18. Write critical notes on eutrophication
19. Write notes on construction of phytograph.
20. Comment on ecotone and edge effect.

(10 x 2=20 marks)

Part C
Answer any six questions

21. Give an account on estuarine ecosystem
22. Give an account on hydrosere.
23. Give an account on sedimentary biogeochemical cycle.
24. With suitable examples explain, food chain and food web.
25. Briefly describe noise pollution.
26. Comment on ecosystem energy flow.
27. Briefly explain causes and effects of acid rain.
28. Comment on biotic factors of ecosystem.

(6 x 5=30 marks)

Part D
Answer any two of the following

29. Write an account on global environmental issues.
30. Give a detailed account on quadrat & transect methods and important quantitative characters used in plant community studies.
31. Briefly describe various strategies of biodiversity conservation.

(2 x 10=20 marks)

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Name:

FAROOK COLLEGE (AUTONOMOUS), KOZHIKODE

Sixth Semester B.Sc Botany Degree Examination, March /April 2019

BOT6B13T – Genetic Engineering

(2016 Admission onwards)

Time: 3 hours

Max. Marks: 80

Part A**(Answer all the questions)****Define/Explain**

Ti plasmid

GUS protein

Shuttle vector

Terminal transferase

micro RNA

Golden rice

Gene targeting

Stains to detect DNA in agarose gel

PEP

Knockout animals

(10 x 1=10 Marks)**Part B****(Answer all of the following)**

Brief note on Genomic library

Legal issues associated with recombinant DNA technology

How can we purify RNA.

What are the principles of electrophoresis?

Antisense RNA technology

Methods to remove proteins from cell homogenate.

Buffers used in electrophoresis

PCR in gene amplification

Precautions required for electrophoresis of RNA

Examples of transgenic animals and plants

(10 x 2=20 Marks)

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Part C
(Answer any six of the following)

21. Briefly describe the various methods to screen the recombinants.
22. What is a vector? Illustrate different type of vectors used in gene transfer.
23. Write a short essay on the applications of recombinant DNA technology
24. Different enzymes used in genetic engineering
25. Briefly explain the method of preparing recombinant plasmid
26. Short note on the fate of transferred DNA in eukaryotic cell.
27. Chromosome walking
28. Explain RNAi.

(6 x 5 = 30)

Part D
(Answer any two of the following)

29. Briefly describe different methods of gene transfer techniques.
30. Illustrate the various steps involved in the production of a genetically modified plant
31. Explain Recombinant DNA technology

(2 x 10 = 20)

FAROOK COLLEGE (AUTONOMOUS), KOZHIKODE
Sixth Semester B.Sc Botany Degree Examination, March /April 2019
BOT6B11T – Cell Biology & Biochemistry
(2016 Admission onwards)

Time: 3 hours

Max. Marks: 80

PART A
Answer All Questions

1. Which part of the cell contains the DNA?
2. Non-protein part of an enzyme is called -----
3. What are tri acyl glycerols?
4. Name the membrane surrounding the vacuole
5. ----- is a reducing disaccharide.
6. DNA is replicated during ----- phase of the cell cycle
7. ----- is a sulphur containing amino acid.
8. The stable and non sticky ends of chromosomes are called -----
9. Name a nitrogen containing secondary metabolite.
10. Which cell organelle is responsible for packaging the proteins that the cell secretes?

(10 x 1 = 10 Marks)

PART B
Answer All Questions

11. Write a note on histones.
12. Distinguish between heterochromatin and euchromatin.
13. Give an account of non-competitive inhibition of enzymes.
14. What are sphingolipids?
15. Mention the differences between prokaryotic and eukaryotic ribosomes.
16. What are Flavonoids ? Add a note on their functions with examples.
17. What are cristae? How are they related to oxysomes?
18. What are zwitter ions? Write the zwitter ionic structure of an amino acid.
19. Why are lysosomes known as cleaners of cell waste?
20. Name a cyclic nucleotide. What is its significance?

(10 x 2 = 20 Marks)

PART C
Answer Any Six Questions

21. Give an account of lampbrush chromosomes
22. Give a brief account of simple lipids.
23. Explain the various stages of prophase I of meiosis.
24. Briefly explain the primary and secondary structure of proteins.
25. With the help of a diagram, explain the structure of chloroplast. Mention its function.
26. Explain aneuploidy and its meiotic behaviour.
27. Briefly explain the fluid mosaic model of biomembranes.
28. What are the morphological, chemical and functional similarities and dissimilarities between microtubules and microfilaments?

(6 x 5 = 30 Marks)

PART D
Answer Any two Questions

29. Give the classification, structure and functions of carbohydrates.
30. With the help of diagrams explain the structure and functions of interphase nucleus.
31. Describe the structural aberrations of chromosomes and their meiotic consequences

(2 x 10 = 20 Marks)