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2B6M21575 (Pages : 2) Reg. No:.....

Name: .....

FAROOK COLLEGE (AUTONOMOUS), KOZHIKODE

Sixth Semester B.Sc. Degree Examination, March/April 2021

BBOT6B09 – Genetics & Plant Breeding

(2018 Admission onwards)

Time: 3 hours Max. Marks: 80

Part- A
(Answer all the questions)

1. Define Phenotype
2. Define hete4rozygous condition.
3. What is Gene mapping
4. A non-reciprocal gene interaction in which one allele suppresses the expression of another non allelic gene is called .....
5. Give an example of an intergeneric cross
6. Write an example for co-dominance
7. Write the ratio of recessive epistasis.
8. Name an alkaloid used in polyploidy breeding which induces chromosome doubling
9. Define Reciprocal cross
10. Father of green revolution in India is _____

(10 x 1=10 marks)

Part - B
(Answer all questions)

11. What is Quarantine?
12. What is the significance of crossing over?
13. What is Turner's syndrome?
14. Explain the characteristics of sex linked inheritance
15. Explain the sex determination mechanism in Melandrium
16. What are the objectives of plant breeding.
17. Explain the Criss cross pattern of inheritance
18. What are sex limited genes .Give an example
19. State Principle of Dominance.
20. Write a note on polyptoidy breeding.

(10 x 2=20 marks)

Part - C
(Answer any six of the following)

21. Explain Incomplete linkage with the help of an example
22. Explain the procedure of pure line selection
23. Explain self-sterility in Nicotiana
24. Explain the physical mechanism of meiotic crossing over.
25. Write an account of inheritance of coat colour in rabbits.
26. Explain the inheritance of ABO blood group in man
27. Explain the inheritance of comb pattern in fowls.
28. Describe the Plastid inheritance in Mirabilis.

(6 x 5=30 marks)

Part - D
(Answer any two of the following)

29. Explain the procedure of breeding for disease resistance .Discuss its merits and demerits.
30. Explain the different mechanisms of sex determination.
31. Describe Complementary gene interaction with the help of an example

(2 x1 0=20 marks)

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FAROOK COLLEGE (AUTONOMOUS), KOZHIKODE

Sixth Semester B.Sc. Degree Examination, March/April 2021

BBOT6B10 – Plant Physiology & Metabolism

(2018 Admission onwards)

Time: 3 hours Max. Marks: 80

Part- A
(Answer all the questions)

1. Give an example for gaseous growth hormone.
2. The site for Beta oxidation.
3. What is photoperiodism?
4. Name an aerobic nitrogen fixing photosynthetic bacteria
5. What is nyctinastic movement?
6. What is matric potential?
7. What is meant by anaplerotic reaction?
8. What is the significance of leghaemoglobin?
9. What is scarification?
10. Name any two antitranspirants.

10x1=10marks

Part - B
(Answer all the questions)

11. What is DPD?
12. Define fluorescence and phosphorescence.
13. What is symplastic pathway?
14. Explain the following terms i) source ii) sink
15. What are the external factors influencing photosynthesis
16. Differentiate between C3 and C4 cycle.
17. How we can represent the growth phase of an organ or organism.
18. Mention the role of phytochrome in flower initiation.
19. Enumerate the biological significance of glycolysis.
20. Give a short note on ATP synthase.

10x2=20 marks

Part C

Answer any six of the following

21. How does biological nitrogen fixation takes place in plants?
22. Write a short note on physiological effect of Auxin
23. Briefly explain Phloem translocation.
24. What are the factors influencing photosynthesis?
25. Differentiate between diffusion and osmosis.
26. Enumerate the steps in EMP pathway
27. Write a short note on Chemiosmotic hypothesis
28. Give an account on organization of respiratory chain

6x5=30 marks

Part - D

Answer any two of the following

29. Explain Kreb's cycle and write down its significance
30. Outline Hatch and Slack cycle and point out differences from Calvin cycle
31. Explain cyclic and noncyclic photophosphorylation reactions in Photosynthesis.

2x10=20 marks

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FAROOK COLLEGE (AUTONOMOUS), KOZHIKODE

Sixth Semester B.Sc. Degree Examination, March/April 2021

BBOT6B11 – Cell Biology & Biochemistry

(2018 Admission onwards)

Time: 3 hours Max. Marks: 80

Part- A
(Answer all the questions)

1. Bond between sugar and nitrogen bone in DNA is called _____ bond.
2. Non-membrane bound body of the nucleus which disappears in the late prophase and reappears in telophase_____
3. Name the scientist who discovered Golgi apparatus?
4. _____is the single membrane which surrounded the vacuoles.
5. Chromatin is composed of_____
6. Carbohydrates are polyhydroxy compounds of _____
7. The product of the ester linkage between fatty acids and glycerol are known as _____
8. Write an example for a coenzyme.
9. Enzymes catalyzing hydrolysis of ester, peptide by the addition of water are called _____.
10. The inner membrane of mitochondrial wall has several hollow infoldings in to the matrix is knows as _____

(10 x 1= 10 marks)

Part - B
(Answer all questions)

11. What is Telomere?
12. Define allosteric enzymes.
13. What are the different types of chromosomes based on position of centromere?
14. Mention any two functions of nucleolus.
15. What is a ketohexose? Give an example.
16. Differentiate between hypoploidy and hyperploidy.
17. Write Michaelis-Menten constant.
18. Enumerate any two biological functions of lipids.
19. Mention any two functions of lysosomes?
20. What are Phytoalexins?

(10 x 2 = 20 marks)

Part C
(Answer any six of the following)

21. What are polysaccharides? Give an account on Homopolysaccharides.
22. Explain the eukaryotic cell cycle.
23. What are compound lipids? Give examples.
24. Write any five differences between prokaryotic cell and eukaryotic cell.
25. Explain the tertiary structure of proteins.
26. Describe the morphology and ultra-structure of chloroplast.
27. Draw the ring structure and chain structure of Glucose.
28. Explain the structural aberrations of chromosomes.

(6 x 5 = 30 marks)

Part - D
(Answer any two of the following)

29. Explain the mechanism of Enzyme action and different types of Enzyme inhibition.
30. With the help of neat labelled diagrams explain the structure and function of Mitochondria.
31. Explain the structure of chromosomes. Draw diagrams and explain the nucleosome model

(2 x 10 = 20 marks)

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Name: .....

FAROOK COLLEGE (AUTONOMOUS), KOZHIKODE

Sixth Semester B.Sc. Degree Examination, March/April 2021

BBOT6B12 – Environmental Science

(2018 Admission onwards)

Time: 3 hours Max. Marks: 80

Part- A
(Answer all the questions)

1. What is Biota?
2. Write an example for inverted pyramid.
3. What is standing crop?
4. Define keystone species.
5. EXP and UNEP.
6. What is Kyoto Protocol?
7. Give an example for Endemic plant species in Kerala.
8. Write any two quantitative characters studies in plant community studies. ?
9. Write an example for lotic ecosystems.
10. Expand EPA?

(1 x 10 = 10 Marks)

PART B
(Answer all questions)

11. What is pyramid of energy?
12. Write any two morphological adaptations of Hydrophytes.
13. What is grazing food chain?
14. What is food web?
15. What is Exotic species? Give example.
16. Write a note on NBPGR.
17. Differentiate Biodegradable and Non-biodegradable products?
18. Briefly explain causes and effects of Acid rain?
19. Define Thermal stratification
20. What is Species Area curve method?

(10 x 2 = 20marks)

PART C
(Answer any six of the following)

21. Write notes on Estuarine ecosystem.
22. Give an account of carbon and nitrogen cycle
23. Describe various Exsitu Conservation methods.
24. Give a brief account of National parks. Write any two examples.
25. Briefly explain causes and effects of Solid waste pollution?
26. Explain the causes and effects of Noise Pollution.
27. Describe the salient feature of Marine Ecosystem.
28. Explain the quadrat and transect methods of sampling

(6 x 5 = 30marks)

Part D
(Answer any two of the following)

29. Describe the need of Ecological adaptation in plants. Explain the similarities in adaptation exhibited by Halophytes, Epiphytes and xerophytes.
30. Explain the Biodiversity Conservation Strategies with special mention on KSBDB
31. Discuss the Global Environmental Changes in the current scenario.

(2 x 10 = 20marks)

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Name: .....

FAROOK COLLEGE (AUTONOMOUS), KOZHIKODE

Sixth Semester B.Sc. Degree Examination, March/April 2021

BBOT6E01 – Genetic Engineering

(2018 Admission onwards)

Time: 3 hours Max. Marks: 80

Part-A
(Answer ALL questions)

Define/Explain

1. Buffers used in electrophoresis
2. Role of Detergents and salts in DNA isolation
3. DNA ladder
4. What does "Bt" in Bt Cotton stand for?
5. ELSI
6. Reporter gene
7. What are probes?
8. Name two stains used to detect DNA in agarose gel
9. Liposomes
10. Kornberg enzyme

(10 x 1 = 10 marks)

Part-B
(Answer ALL questions)

11. Differentiate between a genomic library and cDNA library
12. What are linkers and adapters?
13. What are the different precautions to be taken for electrophoresis of RNA?
14. Give account on gene targeting
15. Write notes on Chromosome walking.
16. Write notes on hybrid vectors.
17. What are Shuttle vectors? Write an example.
18. What is insertional inactivation? Write an example.
19. Write notes on the storage of DNA molecules.
20. How is RNA removed during DNA isolation?

(10 x 2 = 20 marks)

Part-C
(Answer any SIX of the following)

21. What is meant by deproteinization? Explain the various methods used for deproteinization.
22. Describe the protocol for small scale isolation of plasmid DNA.
23. Explain the methods to determine concentration and purity of DNA.
24. Which are the enzymes used in rDNA technology? Describe their function and uses in genetic engineering.
25. Describe Ethical, Social and legal issues associated with rDNA technology.
26. Describe how gene transfer is achieved using Agrobacterium.
27. What is meant by RNAi technology? Explain.
28. Explain the mechanism of Gene knock out.

(6 x 5 = 30 marks)

Part D
(Answer any TWO of the following)

29. Describe different methods of selecting recombinants.
30. Write an essay on various types of cloning vectors.
31. Explain the different methods of Nucleic acid transfer and hybridization. Add note on the Preparation of probes for hybridization.

(2 x 10 = 20 marks)