1B5N23497

(Pages : 2)

Reg. No:.....

Name: .....

FAROOK COLLEGE (AUTONOMOUS), KOZHIKODE

Fifth Semester B.Sc Zoology Degree Examination, November 2023

BZL5B06 – Cell Biology & Genetics

(2019 Admission onwards)

Time: 2 ½ hours

Max. Marks: 80

Section A

I. Short answer questions. Each question carries 2 marks.

1. What is fixation in histology? Name two common fixatives.
2. Comment on the significance of F_1-F_0 Particle in mitochondria.
3. Mention any *four* functions of microfilaments.
4. Write short notes on histone octamer.
5. Distinguish between euchromatin and heterochromatin.
6. What is apoptosis? Mention its significance.
7. What is polygenic inheritance? Mention one example
8. Explain Lyon hypothesis.
9. What is gynandromorphism?
10. Distinguish between Transition and Transversion mutations.
11. Write short notes on PKU.
12. Comment on euthenics.
13. What are holandric genes? Give one example.
14. Comment on nucleolar organizer.
15. Write short notes on Tight junctions.

(Ceiling: 25 marks)

Section B

II. Paragraph questions. Each question carries 5 marks

16. Discuss the differences between light microscope and electron microscope.
17. Briefly explain the polymorphism in lysosomes.
18. Briefly discuss bulk trans-membrane transport mechanisms.

19. Explain different phases of eukaryotic cell cycle.
20. Describe complementary genes with a suitable example.
21. What is linkage? Discuss different types of linkages with suitable examples.
22. Explain the Patau's scheme of classification of human chromosomes.
23. Discuss hormonal influence on sex determination with a suitable example.

(Ceiling: 35 marks)

Section C

III. Essay questions. Answer any *two* questions

24. What are giant chromosomes? Explain the structure and significance of Polytene chromosomes and Lamp brush chromosomes.
25. With a suitable diagram describe the fluid mosaic model of plasma membrane and add notes on membrane lipids, membrane proteins and membrane carbohydrates.
26. What are multiple alleles? Explain the inheritance of multiple alleles with reference to coat colour in rabbits and blood group alleles in man.
27. Explain different types of chromosomal mutations.

(2x10 = 20 marks)

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(Pages : 2)

Reg. No:.....

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FAROOK COLLEGE (AUTONOMOUS), KOZHIKODE

Fifth Semester B.Sc Zoology Degree Examination, November 2023

BZL5B07 – Biotechnology, Microbiology & Immunology

(2019 Admission onwards)

Time: 2 ½ hours

Max. Marks: 80

Section A

I. Short answer questions. Each question carries 2 marks.

1. What are SCPs?
2. Comment on bioleaching.
3. What is the role of reverse transcriptase enzyme in genetic engineering?
4. Give a short account of Immunotherapy.
5. Why is Taq Polymerase used in PCR?.
6. Comment on ADCC.
7. Write a brief note on the types of culture preservation techniques.
8. Discuss briefly the different types of oncogenic viruses.
9. Distinguish between dengue and chikungunya.
10. What is SCID?
11. Comment on APCs.
12. Write a note on Hashimoto's thyroiditis.
13. What are attenuated vaccines? Cite an example.
14. What is agglutination-inhibition reaction?
15. Differentiate between exogenous and endogenous antigens.

(Ceiling: 25 marks)

Section B

II. Paragraph questions. Each question carries 5 marks

16. Explain the methodology involved and the applications of Hybridoma Technology.
17. Write a short essay on Bioremediation.
18. Describe any 4 transfection methods employed in the construction of transgenic organisms.
19. Discuss the types of vectors used in genetic engineering.

20. What is Industrial Fermentation? Write an account on various products of industrial fermentation.
21. Give an account on cells of the immune system.
22. Define Southern Blotting. Add notes on its applications.
23. What are transplantation antigens? Explain its role in graft rejection.

(Ceiling: 35 marks)

Section C

III. Essay questions. Answer any *two* questions.

24. Explain the methodology involved and applications of DNA fingerprinting.
25. Give an account on normal micro flora of human body. Enlist the causative agents, symptoms and treatment of two diseases each, caused by bacteria, viruses and protozoans.
26. With suitable illustrations explain the steps involved in rDNA technology. Add a note on the role of enzymes employed in genetic engineering.
27. Describe the structure of Immunoglobulin G. Give an account of classification and biological functions. Mention immunoglobulin gene families - κ and λ light chain families and the heavy chain family.

(2x10 = 20 marks)

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Reg. No:.....

Name: .....

FAROOK COLLEGE (AUTONOMOUS), KOZHIKODE

Fifth Semester B.Sc Zoology Degree Examination, November 2023

BZL5B08 – Biochemistry & Molecular Biology

(2019 Admission onwards)

Time: 2 ½ hours

Max. Marks: 80

Section A

I. Short answer questions. Each question carries 2 marks.

1. Outline various stabilizing forces in biomolecules.
2. Define carbohydrate. Establish ring structure of Glucose.
3. Give a short note on amylose and amylopectin.
4. Explain the alpha-helical structure of protein with examples.
5. What are the applications of HPLC and GC?
6. Write short note on Maxam-Gilbert sequencing of DNA.
7. Mention the role of cytochromes in ATP synthesis.
8. Differentiate between substrate level oxidation and oxidative phosphorylation
9. Elucidate wobble hypothesis.
10. Explain 3' ending and polyadenylation.
11. What is RNA polymerase holoenzyme?
12. What is meant by priming of Okazaki fragments?
13. What is TATA box and Pribinow box?
14. Write the role of CRISPR- Cas9 in gene expression.
15. Differentiate prophage and temperate phage.

(Ceiling: 25 marks)

Section B

II. Paragraph questions. Each question carries 5 marks

16. Describe common monosaccharides. Add a note on biological importance of carbohydrates.
17. Describe the structural organization of Proteins.
18. Explain the ß oxidation of fatty acids.
19. Give an account of the Bloor's classification of lipids.
20. Describe the active centers of ribosome.
21. What is genetic code? Describe its characters.
22. Briefly describe the different types of regulatory RNAs and their functions.
23. Differentiate mitochondrial and chloroplast genomes.

(Ceiling: 35 marks)

Section C

III. Essay questions. Answer any *two* questions.

24. Explain the mechanism and theories of enzyme action. Mention Co-factors.
25. Describe site, reactions, significance and energetics of Citric acid cycle.
26. Write an essay on coupled transcription and translation in prokaryotes.
27. Explain the different methods of genetic transfer in bacteria.

(2x10 = 20 marks)

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FAROOK COLLEGE (AUTONOMOUS), KOZHIKODE

Fifth Semester B.Sc Zoology Degree Examination, November 2023

BZL5B09 – Methodology in Science, Biostatistics & Bioinformatics

(2019 Admission onwards)

Time: 2 ½ hours

Max. Marks: 80

Section A

Short answer questions. Each question carries 2 marks.

1. What is microarray? Give any two of its applications.
2. What is the full form of CPCSEA and comment on it.
3. Explain probability sampling.
4. What is meant by standard error?
5. What is the difference between scientific evidence and proof?
6. Briefly explain molecular docking.
7. What is the difference between ANOVA and t -test
8. What is null hypothesis?
9. What is INFLIBNET? How it helps in academic services.
10. Define the term metabolomics.
11. Distinguish between cladistics and ontology.
12. What is a patent. Give an example.
13. Give a short account on secondary databases.
14. Differentiate between frequency polygon and frequency curve.
15. What is metabolite databases? Give an example.

(Ceiling: 25 marks)

Section B

Paragraph questions. Each question carries 5 marks

16. Differentiate inductive and deductive method of scientific reasoning with examples.
17. What is peer review? What is its relevance in scientific publishing?
18. What is cyber crime? What are its different types?

19. What are database search engines? Give an account on major database search engines.
20. What is sampling ? What are the different methods of sampling?
21. Distinguish between proteomics and genomics. What are the interpretations that can be made from their data?
22. Explain pairwise sequence alignment with example.
23. What is arithmetic mean? Find the mean deviation from the following data set
    67,49,61,63, 44, 59, 49,55,68,65

(Ceiling: 35 marks)

Section C

Essay questions. Answer any *two* questions.

24. Write on different steps involved in designing an experiment.
25. Give a detailed account of different applications of Information Technology
26. Write an essay on different methods used for the presentation of data.
27. Explain Sanger's DNA sequencing method and add a note on its applications.

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FAROOK COLLEGE (AUTONOMOUS), KOZHIKODE

Fifth Semester B.Sc Zoology Degree Examination, November 2023

(Open Course)

BZL5D01 – Reproductive Health and Sex Education

(2019 Admission onwards)

Time: 2hours Max. Marks: 60

Section A

I: Short answer questions. Each carries 2 marks.

1. What is MTP?
2. What are the natural contraceptive methods?
3. What is the importance of sex education?
4. What are emergency contraceptive pills?
5. Define reproductive health?
6. Comment on twin studies?
7. What is Klinefeltor's syndrome?
8. What is amniocentesis?
9. Expand PNDT?
10. What is the importance of prenatal diagnosis?
11. What is gender discrimination?
12. What is POCSO act?

(Ceiling=20 Marks)

Section B

II :Paragraph questions.Each carries5 marks.

13. What is AIDS? Discuss the causes, symptoms, transmission diagnosis.
14. Explain Oogenesis?
15. Write note on STDs?
16. Give the structure of testis and accessory organs.
17. Comment on sexual orientations?
18. What is placenta? Mention its functions.
19. Write notes on cryopreservation and embryo transfer.

(Ceiling =30 marks)

Section C

III. Essay questions.Answer any*one* question.

20. Explain female sexual cycle and its hormonal control?
21. Write an essay on IVF and embryo transfer

(1× 10=10 Marks)

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(Pages : 1)

Reg. No:.....

Name: .....

FAROOK COLLEGE (AUTONOMOUS), KOZHIKODE

Fifth Semester BA Degree Examination, November 2023

(Open Course - Physical Education)

BPE5D03 - Physical Activity Health and Wellness

(2019 Admission onwards)

Time: 2 hours

Max. Marks: 60

PART A

Answer all questions

1. Define Health?
2. Explain your interpretation of the term 'Wellness'?
3. What is the method of calculating BMI ?
4. Define *Yama* within the context of Yoga philosophy?
5. What is Blood Pressure ?
6. Expand the acronym RICE in the context of injury treatment ?
7. Elaborate on the concept of Fitness balance ?
8. What are the types of Physical fitness?
9. What is khyphosis ?
10. Write the names of any Four Sitting asanas?
11. What is Obesity?
12. List out fat soluble and water soluble vitamins?

(12 x 2 = 24 , Maximum ceiling 20 marks)

PART B

Answer all questions

13. Write down 8 limbs of Ashtanga yoga ?
14. Define first aid ? Write down the principle of First aid?
15. What are the components of HRPF?
16 Define endurance and write down any three methods for developing endurance ?
17. What are the advantages of regular physical exercise programme?
18. Define Nutrition? List out the macro and micro nutrients ?
19. What is the difference between isotonic and isometric exercise?

(7 x 5 = 35, Maximum ceiling 30 marks)

PART C

Answer any one question

20. Define the term Physical Education and elucidate the contemporary global aspiration. aim, objectives and breadth of physical education ?
21. What is posture? Write the importance of good posture and explain three postural deformities and its management ?

(1 x 10 = 10 marks)