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2B5N22212

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Reg. No:.....

Name:

FAROOK COLLEGE (AUTONOMOUS), KOZHIKODE

Fifth Semester B.Sc Zoology Degree Examination, November 2022

BZL5B09T – Methodology in Science, Biostatistics & Bioinformatics

(2019 Admission onwards)

Time: 2 ½ hours

Max. Marks: 80

Section A

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

1. What you meant by adhoc hypothesis?
2. What is scientific attitude and why is it important?
3. Why units and dimensions are important?
4. What is the role of CPCSEA?
5. What is Intellectual property?
6. How do you find a sample mean?
7. Differentiate between discrete series data and continuous series data
8. What is a range? Write down its formula
9. Write down the merits of pie diagram
10. What is F-test and T-test?
11. What is STAG?
12. Mention some web based tools for DNA
13. What is clustal package?
14. What are the advantages of mass spectrometry?
15. What is the difference between a genome and metagenome?

(Ceiling: 25 marks)

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Section B

II. Paragraph questions. Each question carries 5 marks

16. Discuss primary, secondary and digital sources of scientific information.
17. Give account on different methods of sampling
18. Write a note on animal experimentation, animal research and *in vivo* testing
19. Find the mean, median and mode of the following data:

Class	0-10	10-20	20-30	30-40	40-50	50-60	60-70
Frequency	4	4	7	10	12	8	5

20. Explain briefly Metabolite databases
21. Discuss Sanger's method of DNA sequencing.
22. Write an account on cladistics and ontology
23. What are the goals and application of bioinformatics?

(Ceiling: 35 marks)

Section C

III. Essay questions. Answer any two questions.

24. What is biological database? Discuss major databases in bioinformatics
25. What is Proteomics? Explain in detail about the principle and its application
26. Explain the major steps involved in science and scientific studies
27. Write an essay on Measures of Dispersion with examples

(2x10 = 20 marks)

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Name:

FAROOK COLLEGE (AUTONOMOUS), KOZHIKODE

Fifth Semester B.Sc Zoology Degree Examination, November 2022

BZL5B07T – 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 is gene knockout technology? Mention any example.
2. What are the role of polynucleotide kinases?
3. Write a note on pluripotent stem cell?
4. What is meant by lipofection? Mention its advantages.
5. What is ADCC and its immunological significance?.
6. What are cytokines? Mention its importance.
7. What is HAT selection technique?
8. Comment on Human cloning.
9. What are oncogenic viruses? Provide examples.
10. Write notes on Molecular pharming.
11. Briefly mention adjuvants with example.
12. What is meant by HLA? Mention its role in transplantation.
13. What are interferons?
14. What are different types of culture media?
15. What is a bioinsecticide? Provide an example.

(Ceiling: 25 marks)

Section B

II. Paragraph questions. Each question carries 5 marks

16. Describe the different immunoglobulin gene families.
17. Explain the major physical and chemical transfection methods.

18. What are the factors for determining immunogenicity of an antigen?
 19. Explain hybridoma technology for the production of monoclonal antibodies. Comment on the applications of monoclonal antibodies.
 20. Explain different sterilization techniques employed in microbiology.
 21. Describe the different bacterial staining techniques emphasizing Gram staining.
 22. Differentiate Biofiltration, Bioremediation, and Bioleaching. Mention their uses.
 23. Describe the different phases of bacterial growth and the factors affecting.
- (Ceiling: 35 marks)

Section C

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

24. What are the different types of vectors used in genetic engineering? Mention their pros and cons.
25. Explain the medical applications of biotechnology. Briefly mention about genetic markers.
26. Describe the microbial diseases in human. Comment on symbiotic microorganisms in humans.
27. Explain primary and secondary immunodeficiency syndromes with example.

(2x10 = 20 marks)

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Name:

FAROOK COLLEGE (AUTONOMOUS), KOZHIKODE

Fifth Semester B.Sc Zoology Degree Examination, November 2022

BZL5B06T – 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 are Isoalleles?
2. Briefly describe the principles of 'SEM'
3. Eugenics.
4. Testis-determining factor.
5. Write a short note on Histological stains.
6. Mutagenesis.
7. What is Lyon hypothesis?
8. Cytoskeleton.
9. Fluid-mosaic model of plasma membrane.
10. Give a brief note on Environmental Sex Determination.
11. Lysosomal enzymes.
12. What are giant chromosomes? Write an account on them.
13. Nuclear pore complex (NPC).
14. Describe Passive transport across plasma membrane.
15. Genic balance theory of Bridges.

(Ceiling: 25 marks)

Section B

II. Paragraph questions. Each question carries 5 marks

16. Briefly describe the techniques for the demonstration of proteins.
17. Explain male heterogametic and female heterogametic mechanism of sex determination.
18. Comment on Diseases caused by autosomal anomalies.
19. Explain the mechanism of apoptosis and its significance.
20. Explain the types of point mutation.
21. Write a short note on Modifications of the plasma membrane.
22. Discuss multiple alleles with reference to human blood groups.
23. Give a description on the structure and functions of Nucleolus.

(Ceiling: 35 marks)

Section C

III. Essay questions. Answer any *two* questions

24. Write an account on structure, organization, biogenesis and functions of mitochondria.
25. Explain the cellular events during meiosis with the labelled diagrams.
26. Write an essay on Allelic interaction of genes.
27. Explain linkage. What are the different types of linkage?

(2x10 = 20 marks)

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FAROOK COLLEGE (AUTONOMOUS), KOZHIKODE
Fifth Semester B.Sc Zoology Degree Examination, November 2022

BZL5B08T – Biochemistry and Molecular Biology

(2019 Admission onwards)

Time: 2 ½ hours

Max. Marks: 80

Section A

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

1. What is chiral carbon?
2. What is zwitter ion?
3. What are triglycerides?
4. What is ribozyme?
5. Distinguish glycogenesis and glycogenolysis.
6. What are okazaki fragments? How they are formed?
7. What are luxury genes?
8. Explain degeneracy of genetic code.
9. What is sumoylation?
10. Explain the role of tRNA in translation.
11. Give a short account on molecular chaperons.
12. What is RNA interference?
13. What is the principle behind column chromatography?
14. Mention the clinical significance of lipid profile estimation.
15. What is protein targeting?

(Ceiling: 25 marks)

Section B

II. Paragraph questions. Each question carries 5 marks

16. Why sucrose is a non-reducing sugar and maltose is a reducing sugar?
17. Give an account of Sanger's method of DNA sequencing.
18. What is isozyme? Mention examples.
19. Briefly elucidate steps in HMP pathway.
20. What are the properties of genetic code? Add a note on wobble hypothesis.
21. Discuss in detail about transposons and retrotransposons.
22. Write a short note on mitochondrial and chloroplast genome.
23. DNA replication is bidirectional and discontinuous. Explain

(Ceiling: 35 marks)

Section C

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

24. Give an outline classification of carbohydrates with examples.
25. Discuss in detail about electron transport chain and oxidative phosphorylation.
26. Describe the steps involved in transcription. Add a note on post-transcriptional modification of primary transcript.
27. Give a detailed account on structure and life cycle of a bacteriophage.

(2x10 = 20 marks)

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FAROOK COLLEGE (AUTONOMOUS), KOZHIKODE

Fifth Semester B.Sc Zoology Degree Examination, November 2022

BZL5D01T – Reproductive Health and Sex Education

(2019 Admission onwards)

Time: 2 hours

Max. Marks: 60

SECTION A

I. Answer the following questions. Each carries *two* marks

1. Write note on Turner's syndrome.
2. What is paraphilia?
3. Write note on sex reversal.
4. Write note on placenta and its significance.
5. What is PNDT Act?
6. List any four common causes of male infertility.
7. What is abortion?
8. Write note on syphilis.
9. What is venereal disease?
10. Write note on surrogacy.
11. Discuss the gender discrimination in Indian society.
12. What is cyber sex?

(Ceiling 20 Marks)

SECTION B

II. Answer the following questions in a paragraph. Each carries *five* marks

13. Explain the socio-economic dimension of STD.
14. Write note alternate sexual orientation.
15. Give an account on IVF-ET.
16. Write notes on (a) Intra-cytoplasmic sperm injection and (b) Cryopreservation of germ cells.
17. Discuss the stages in spermatogenesis.
18. Write a brief account on reproductive rights.
19. Give an account on chromosomal mechanism of sex determination.

(Ceiling 30 marks)

SECTION C

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

20. Write an essay on menstrual cycle and hormone regulation.
21. Explain the various methods of fertility control.

(1 × 10 = 10 Marks)