

S.V.K.P. &Dr. K.S. RAJU ARTS & SCIENCE COLLEGE (A)

Penugonda-534320, W. G. Dt., A.P.

M.Sc. Zoology& Aquaculture – I Semester

PAPER –I: TOOLS AND TECHNIQUES FOR BIOLOGY (23ZAQT11)

(W.e.f. 2023-24 Admitted Batch)

Time: 3 hrs.

MODEL QUESTION PAPER

Max. Marks: 70

Answer ALL questions

SECTION-A

(5 x 10 = 50 Marks)

1. a) What is an assay? Explain different types of assays.
(OR)
b) Write about pH meter: Operation of pH electrodes.
2. a) Describe various types of chromatographic techniques to separate molecules
(OR)
b) Describe the principle and applications of spectrophotometer.
3. a) Write an essay on Visualization of cells and subcellular components by light microscopy.
(OR)
b) Write the principle and types of microscopy and elaborate on dark field microscopy
4. a) Write about microtomy working principle and different types of microtomes.
(OR)
b) Write about the applications of microtomy in biological studies.
5. a) Describe the process of inoculation and growth monitoring.
(OR)
b) Explain in detail about microbial assays.

Answer any FIVE questions

SECTION-B

(5x 4 = 20 Marks)

1. Density gradient centrifugation
2. Electrophoreses
3. TLC.
4. TEM.
5. Histology.
6. Sterilization.
7. Growth Media.
8. HPLC

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PAPER –II: BIOSYSTEMATICS, BIODIVERSITY &EVOLUTION(23ZAQT12)

(W.e.f. 2023-24 Admitted Batch)

Time: 3 hrs.

MODEL QUESTION PAPER

Max. Marks: 70

Answer ALL questions

SECTION-A

(5 x 10 = 50 Marks)

1. a) Define Biosystematics. Explain in detail the importance and applications of Biosystematics
(OR)

b) Write about chemotaxonomy

2. a) Discuss about the different taxonomic procedures.

(OR)

b) Write about ICZN in detail.

3. a) Discuss the types of Biodiversity and ecosystem.

(OR)

b) Write about Equitable sharing & conservation of Biodiversity.

4. a) Write about different species concepts.

(OR)

b) What is Speciation. Explain the mechanism involved in speciation.

5. a) Discuss in detail about the theories of Organic Evolution.

(OR)

b) What is Hardy Weinberg Law.Discuss.

Answer any FIVE questions

SECTION-B

(5x4 = 20 Marks)

1. Cytotaxonomy.

2. Essentialism.

3. Taxonomic keys.

4. Gene Banks.

5. Eras.

6. Experiment of Miller.

7. Mutations.

8. Punctuated equilibrium.

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PAPER –III: BIOMOLECULES (23ZAQT13)

(W.e.f. 2023-24 Admitted Batch)

Time: 3 hrs.

MODEL QUESTION PAPER

Max. Marks: 70

Answer ALL questions

SECTION-A

(5 x 10 = 50 Marks)

1. a) Write about Biomolecules chemical composition.
(OR)
b) Discuss the principles and laws of thermodynamics.
2. a) Describe the structure, classification and properties of amino acids.
(OR)
b) Explain about structural characterization of proteins.
3. a) Write about the classification, structure, properties and functions of monosaccharides.
(OR)
b) Explain about polysaccharides and their occurrence in nature.
4. a) Discuss about the classification, structures, properties and biological functions of fatty acids.
(OR)
b) Explain about phospholipids, sphingolipids, prostaglandins, and steroids with their biological role.
5. a) Explain about the structure, types and physicochemical properties of DNA.
(OR)
b) Write in detail about RNA and its functions.

Answer any Five questions

SECTION-B

(5x4 = 20 Marks)

1. Entropy and enthalpy
2. Ramachandran plot.
3. Peptide bond.
4. Glycoproteins.
5. fatty acids.
6. Chitin
7. Denaturation of DNA.
8. mRNA

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PAPER –IV: MOLECULAR CELL BIOLOGY(23ZAQT14)

(W.e.f. 2023-24 Admitted Batch)

Time: 3 hrs.

MODEL QUESTION PAPER

Max. Marks: 70

Answer ALL questions

SECTION-A

(5 x10 = 50 Marks)

1. a) Describe in detail about the transport across the cell membrane.
(OR)
b) Explain the transport of macromolecules across the epithelial layer.
2. a) Explain the role of cytoskeletal elements in defining the structure of a cell.
(OR)
b) Enumerate the role of cytoskeletal elements in mitosis.
3. a) Elaborate on the second messenger system in cell signaling
(OR)
b) Write about MAP kinase pathways
4. a) Write in detail about cell adhesion and communication mechanisms.
(OR)
b) Write an essay on cell cycle.
5. a) Write an essay on mobile DNA
(OR)
b) Describe various post-translational mechanisms in protein synthesis.

Answer any FIVE questions

SECTION-B

(5x 4 = 20 Marks)

1. Membrane potential.
2. Surface receptor
3. Kinesin
4. Apoptosis
5. Integrins and collagen.
6. Chromosomal organization of genes.
7. Non coding DNA.
8. Symports and antiports.

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M.Sc. Zoology& Aquaculture – II Semester

PAPER –I: BIOSTATISTICS & BIOINFORMATICS (23ZAQT21)

(W.e.f. 2023-24 Admitted Batch)

Time: 3 hrs.

MODEL QUESTION PAPER

Max. Marks: 70

Answer ALL questions

SECTION-A

(5 x 10 = 50 Marks)

1. a) What an essay on Sampling.

(OR)

- b) Write about graphical presentation of data.

2. a) Discuss in detail about the Measures of Central tendency.

(OR)

- b) Write about Measures of dispersion.

3. a) Explain in detail about the bivariate analysis..

(OR)

- b) What is test of significance. Discuss in detail.

4. a) Describe about the Basic components of the Computer..

(OR)

- b) Explain the use of MS excel in for data presentation..

5. a) What are biological databases? Explain.

(OR)

- b) Discuss in detail about sequence alignments.

Answer any FIVE questions

SECTION-B

(5x 4 = 20 Marks)

- 1.Primary data and secondary data

- 2.Ogive.

3. Mode

4. Poisson distribution

5. Chisquare test.

6. MS word.

7. Power point.

8. Phylogenetic analysis

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M.Sc. Zoology & Aquaculture – II Semester

PAPER –II: ANIMAL PHYSIOLOGY (23ZAQT22)

(W.e.f. 2023-24 Admitted Batch)

Time: 3 hrs.

MODEL QUESTION PAPER

Max. Marks: 70

Answer ALL questions

SECTION-A

(5 x 10 = 50 Marks)

2. a) Write briefly molecular structure and properties of muscle, Add note on sliding filament theory.
(OR)

b) Write about haemopoiesis, Haemoglobin, and haemostasis. Add note on factors affecting blood coagulation.

2. a) Write about the anatomy of brain.

(OR)

b) Write about photoreceptors, Auditory, Mechanoreceptors..

3. a) Write about osmoregulation in aquatic Environments.

(OR)

b) Write about response to biotic and abiotic factors.

4. a) Write about the comparative physiology of excretion, Urine formation, Urine concentration, and waste elimination.

(OR)

b) Write about comparative anatomy of heart structure, myogenic heart. Add a note on blood pressure.

5. a) Explain fresh water and terrestrial environment..

(OR)

b) Write about Yoga and Meditation

Answer any FIVE questions

SECTION-B

(5x4 = 20 Marks)

1. Cardiac muscle
2. Blood groups.
3. Synaptic transmission.
4. Chemoreceptor.
5. Acclimatization
6. BMR
7. Micturition
8. Estuaries.

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M.Sc. Zoology& Aquaculture – I Semester

PAPER –III: IMMUNOLOGY (23ZAQT23)

(W.e.f. 2023-24 Admitted Batch)

Time: 3 hrs.

MODEL QUESTION PAPER

Max. Marks: 70

Answer ALL questions

SECTION-A

(5 x 10 = 50 Marks)

1.a) What is innate immunity? Describe various innate immune mechanisms.

(OR)

b) Describe the structure and functions of various types of immunoglobulins

2.a) Write an essay on antigen-antibody interactions.

(OR)

b) What are the cells involved in immune response? Describe their role.

3.a) Write about processing and presentation of intracellular and extracellular antigens

(OR)

b) Elucidate the mechanisms of antibody response to antigens.

4. a) Write about cell mediated immunity

b) Write about Classical and alternative activation of complement..

5. a) What is immune tolerance? Elucidate the mechanisms of tolerance in T and B cells.

(OR)

b) Write an essay on immunological tests used in molecular and diagnostic laboratories.

Answer any Five questions

SECTION-B

(5x4 = 20 Marks)

1.Acquired immunity.

2.Haptens

3.Primary lymphoid organs.

4.Antigen presenting cells

5.Macrophage

6.Antigen receptors.

7.ELISA.

8.Thymic hormones.

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M.Sc. Zoology& Aquaculture – II Semester

PAPER –IV: MOLECULAR BIOLOGY(23ZAQT24)

(W.e.f. 2023-24 Admitted Batch)

Time: 3 hrs.

MODEL QUESTION PAPER

Max. Marks: 70

Answer ALL questions

SECTION-A

(5 x10 = 50 Marks)

1. a) Explain the prokaryotic and eukaryotic DNA replication.

(OR)

- b) Explain the mechanics of DNA replication.

2. a) Explain the post transcription in prokaryote and eukaryotic transcription.

(OR)

- b) Explain the post transcriptional modifications in RNA.

3. a) Explain the mechanisms of prokaryotic and eukaryotic translation.

(OR)

- b) Explain the molecular mechanism of the antisense molecules and add a note on inhibition of splicing.

4. a) Write about DNA damage- DNA damage agents.

(OR)

- b) Write about gene targeting and DNA repair.

5. a) Explain the types of mapping and molecular mapping of genome.

(OR)

- b) Explain the Southern fluorescence in situ hybridization for genome analysis.

Answer any FIVE questions

SECTION-B

(5x 4 = 20 Marks)

1. Structure of DNA

2. RNA polymerases.

3. mRNA

4. Genetic code.

5. Ribozyme

6. Mutagens

7. Holiday junction

8. FISH