



SRI DEVARAJ URS ACADEMY OF HIGHER EDUCATION & RESEARCH
(A DEEMED TO BE UNIVERSITY)

M.Sc. Molecular Biology & Human Genetics (Semester-I)

April 2023 Examination

Time : 3 Hrs.

[Max. Marks :100]

Cell Biology

Q.P Code : M1510

Your answers should be specific to the questions asked.

Draw neat labelled diagrams wherever necessary.

LONG ESSAY

2 X 20 = 40 Marks

1. Explain the composition and the biological significance of extracellular matrix.
2. Explain the mechanism and biological significance of apoptosis

SHORT ESSAY

6X 10 = 60 Marks

3. List the functions of any five eukaryotic cell organelles.
4. Describe the cellular and molecular events that occur during inflammation.
5. Describe the biological significance of collagen, elastin and hyaluronic acid in extracellular matrix.
6. Describe the significance of cell cycle check points.
7. Describe the process of chemotaxis using blood cell migration as an example.
8. Explain the mechanism of cell signalling mediated by epidermal growth factor.



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Time : 3 Hrs.

[Max. Marks :100]

Principles of Genetics

Q.P Code : M1520

Your answers should be specific to the questions asked.

Draw neat labelled diagrams wherever necessary.

Long Essay

2X20=40 Marks

1. Explain different types of post transcriptional modifications in eukaryotic organisms
2. Explain the components and mechanism of DNA replication in prokaryotic organisms

Short Essay

6X10=60 Marks

3. Describe mendel experiments of mono and dihybrid cross
4. List the factors affecting hardy-weinberg equilibrium and explain the impact of population stratification on hardy-weinberg equilibrium
5. Describe the organization of viral genome
6. Explain the differences in the genome organization of prokaryote and eukaryotes
7. Describe the regulation of gene expression in bacteria using lac-operon
8. Describe the folding and degradation of proteins

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M.Sc. Molecular Biology & Human Genetics (MB& HG)

First Year (Semester-I) April 2023 Examination

Time: 3.00 Hrs

[Max. Marks: 100]

Anatomy

Q.P Code : M1530

Your answers should be specific to the questions asked.

Draw neat labelled diagrams wherever necessary.

LONG ESSAYS

2x20=40 Marks

1. Describe the Thyroid gland under the following headings –
a) Gross features b) Parts c) Relations d) Blood supply e) applied aspects
2. Describe the Uterus - under the following headings –
a) Parts b) Relations c) Supports d) Blood supply e) applied aspects

SHORT ESSAYS

6x10 =60Marks

3. Define Pericardium- Describe the layers, sinuses and importance of Pericardium
4. Classify the Cartilaginous Joints with examples
5. Describe Middle ear – Boundaries ,contents and applied aspects
6. Describe the gross features, blood supply, lymphatic drainage and clinical anatomy of Mammary gland
7. Describe the formation, circulation, absorption and functions of CSF
8. Discuss the process of fertilization and its effects

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M.Sc. Molecular Biology & Human Genetics (Semester-I)
April 2023 Examination

Time : 3 Hrs.

[Max. Marks :100]

Biochemistry
Q.P Code : M1540

*Your answers should be specific to the questions asked.
Draw neat labelled diagrams wherever necessary.*

LONG ESSAY

2 X 20 = 40 Marks

1. Describe various types of enzyme inhibition with graphs. Write on the biomedical importance of enzyme inhibitors in medicine. Define Isoenzymes. List three examples with their serum biological reference range(10+5+2+3) .
2. Explain the different levels of structural organization of proteins with neat diagrams. What are chaperone proteins? Mention their significance. Explain prion diseases with suitable examples(10+2+3+5) .

SHORT ESSAY

6X 10 = 60 Marks

3. Classify carbohydrates with suitable examples. List any 5 biomedical importance of carbohydrates(5+5)
4. Define BMR. Mention the normal levels BMR. Explain briefly 6 factors which effect BMR .List 5 major functions of carbohydrates. Explain the protein sparing action of carbohydrates in the body. (1+1+3 +3+ 2).
5. Write the chemistry, sources, daily requirement, biochemical functions and deficiency manifestations of Vitamin C. (1+1+1+4+3)
6. What is the normal blood pH? Explain various blood buffers by which acid-base balance is regulated in the body. Derive Henderson Hasselbach's equation. Explain its significance (1+5+3+1)
7. With a neat labeled diagram and describe the transport of electrons through ETC. Describe two shuttles involved in transfer of reducing equivalents from cytoplasm to mitochondria (7+3).
8. What are the different types of DNAs? Describe the structure of B-DNA with a neat labelled diagram. What are nucleosides and nucleotides? Give two examples each(2+5+3)

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