2014-15

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

Master of Philosophy (M.Phil)
Molecular Cell Biology and Medical Genetics
February-2015 Examinations
(Semester - I)

Time: 3 Hrs. [Max. Marks: 100]

Paper – I
Cytogenetics
Q.P Code: 6111

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

Section – A Cytology (50 Marks)
(Use Separate Answer booklet for Section "A" and Section "B")

LONG ESSAY **2 X 10 = 20 Marks**

1. Write about the molecular pathway and its regulation in apoptosis.
2. Write an essay about abnormal cell proliferation and the regulation mechanism of suppressor gene.

SHORT ESSAY **3X 5 = 15 Marks**

3 Genes.
4 Cell membrane its structure and function.
5 Collection and processing of amniotic fluid.

SHORT ANSWERS **5 X 3 = 15 Marks**

6 Synovial fluid.
7 Golgi bodies.
8 Mitosis.
9 Nucleus.
10 Specimen identification.

Section – B Genetics (50 Marks)
(Use separate Answer booklet for Section-B)

LONG ESSAY **2 X 10 = 20 Marks**

1. Structural changes in chromosomes with examples.
2. Crossing over and linkage maps with evidence.

SHORT ESSAY **3X 5 = 15 Marks**

3 Role of radiation on cell division.
4 Coupling and repulsion hypothesis.
5 Mutation-definition, classification and frequency .

SHORT ANSWERS **5 X 3 = 15 Marks**

6 Turner's syndrome.
7 Gene duplication.
8 Extended chromatin.
9 Nullisomy.
10 Mutagens.

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(Semester - I)

Time: 3 Hrs. [Max. Marks: 100]

Paper – II
(Molecular cell Biology)
Q.P Code: 6121

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

LONG ESSAY **2 X 10 = 20 Marks**

1. Explain the overview of DNA replication in eukaryotes.
2. Explain the steps of synthesis of mRNA in prokaryotes.

SHORT ESSAY **10 X 5 = 50 Marks**

3 De novo synthesis of purines.
4 Structural differences among A , B and Z-DNA.
5 Principle and application of southern and northern blotting.
6 Zinc-finger motif.
7 Telomeres-structure and function.
8 Describe the structure and functions of different types of RNA.
9 Extrachromosomal elements.
10 List the different steps of prokaryotic protein synthesis.
11 Features of exons and introns.
12 Discuss the utility of synthetic analogues in medicine.

SHORT ANSWERS **10 X 3 = 30 Marks**

13 Nucleotide excision repair.
14 TATA box.
15 Splicesome.
16 Nuclear localization signal.
17 SNARE proteins.
18 Different kinds of restriction enzymes.
19 Molten globule state in protein folding.
20 Ribozyme.
21 Melting temperature of DNA (Tm)
22 Disorders of pyrimidine metabolism.

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