SRI DEVARAJ URS ACADEMY OF HIGHER EDUCATION & RESEARCH

(A DEEMED TO BE UNIVERSITY)

Master of Philosophy (M.Phil)
Semester - I Examination May 2012

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

Cytogenetics
Paper – I
Q.P Code : 6111

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

(Use separate answer booklet for Section 'A' & Section 'B')

Section – A Cytology (50 Marks)

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

1. Describe the pathway of regulation of apoptosis
2. Discuss indetail the structure and function of nucleus

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

3 Structure and function of endoplasmic reticulum
4 Golgi complex, structure and functions
5 Structure and function of cell membrane

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

6 Mitochondria
7 Polysomes
8 Heterophagy
9 Ring chromosomes
10 Handling of specimen for analysis in molecular biology

Section – B Genetics (50 Marks)

(Use separate answer booklet for Section'B')

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

1. Define chromosome. Explain Denver classification and process of karyotyping
2. Define cell cycle. Mention and explain different phases

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

3 Barr body
4 Differentiate autosomal dominant and autosomal recessive inheritance
5 Mutagens

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

6 Structure of gene
7 Gene mapping
8 Mention any three aneuploidy and its karyotype
9 Isochromosome
10 Sex chromatin

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Paper – II

Molecular Biology

Q.P Code : 6121

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Draw neat labelled diagrams wherever necessary.

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

1. Explain the steps of protein biosynthesis in eukaryotes
2. Explain the overview of DNA replication prokaryotes

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

3 Post transcriptional modifications

4 Chromatin structure

5 TATA box, TATA binding protein and associated proteins

6 Extrachromosomal elements

7 Base excision repair of DNA

8 Reverse transcriptase enzyme; Characteristics and application in molecular biology

9 Purine salvage pathway

10 Components required for translation process

11 Molecular chaperones and protein folding

12 Positional cloning

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

13. Rho dependent and Rho independent termination
14. Supercoiling of DNA
15. Gout
16. Nucleosome
17. Melting temperature of DNA (Tm)
18. Wobble hypothesis
19. Lesch Nyhan syndrome
20. Characteristics of Genetic code

21 Orotic aciduria

22 Termination codon

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