SRI DEVARAJ URS ACADEMY OF HIGHER EDUCATION & RESEARCH

(A DEEMED TO BE UNIVERSITY)

M.Sc. Molecular Biology & Human Genetics (Semester-II)
August-2015 Examination

Time : 3.00 Hrs. **[Max. Marks : 100]**

Paper - I

CELL BIOLOGY

Q.P Code : MBHG -110

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

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

1. Give a detail account on composition, organization and dynamics of transportation across the plasma membrane.
2. Describe the G-Protein coupled receptor mediated cell signaling.

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

3. Explain the mechanism of endocytosis.
4. Explain the structure and function of peroxisome.
5. Describe the biosynthesis of ribosome.
6. Discuss the chemiosmotic theory.
7. Give a detail account on programmed cell death.
8. Write a note on receptor kinases.
9. Explain the structural organization of chromatin.
10. Discuss the phases of meiosis.
11. Explain the clover leaf model of t-RNA.
12. Describe the regulation of cell cycle.

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

13. State the differences between prokaryotic and eukaryotic cells.
14. Enlist the functions of Endoplasmic reticulam.
15. Define exocytosis with neat diagram.
16. Write a note on cross-talk between signal transduction mechanisms.
17. Write a note on Cam Kinase.
18. Describe the structure of cilia.
19. State the differences between heterochromatin and euchromatin.
20. Define chromatin insulators.
21. State the role of mRNA and ribosome in the protein synthesis.
22. Write a note on exocytosis.

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Examination August-2015

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Paper-II

PRINCIPLES OF GENETICS AND MOLECULAR GENETIC MECHANISM

Q.P Code : MBHG-111

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

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

1. Write an account on in born errors of metabolism with examples.
2. Describe the molecular mechanism of sex determination in human.

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

3. Write a note on cytoplasmic inheritance in Limnea peregra.
4. Explain the numerical chromosomal aberrations citing example.
5. Define process of transformation and conjugation
6. Enuanciate the importance of prenatal diagnosis
7. Give a brief note on the symptoms of Alzeimer's disease.
8. Explain leading and lagging strand.
9. Mention the types of enzyme machineries involved in DNA replication.
10. Describe the life cycle of viruses.
11. Write the various models of ribosomes.
12. Describe the mechanism of linkage in Drosophila.

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

13. Pleiotropy.
14. Translocation.
15. Introns and exons
16. Transposable elements
17. Apoptosis.
18. Duchene muscular dystrophy.
19. Bidirectional replication
20. F-factor
21. B-DNA
22. DNA Polymerases.

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Examination August-2015

Time : 3.00 Hrs. **Paper-III** **[Max. Marks : 100]**

MOLECULAR BIOLOGY TECHNIQUES

Q.P Code : MBHG-112

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

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

1. Write a detailed account on the general properties of cloning vectors and explain the special features of BAC and YAC.
2. Explain in detail the principle, method and applications of next generation sequencing.

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

3. Explain the construction of DNA library.
4. Discuss the application of His-tag for affinity purification.
5. Describe the principle and method of microarray.
6. Write an account on sanger method of DNA sequencing.
7. Explain the principle and procedure of anti-sense technology.
8. What is gene knock out? Explain its applications.
9. Give an account of principle and applications of SDS PAGE.
10. Discuss the usefulness of Mass spectrometry in protein analysis.
11. Explain the principle and method of southern blotting.
12. Discuss the role of restriction enzymes in rDNA technology.

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

13. Plasmid
14. Klenow Fragment
15. DNA Ligase
16. Eco. RI
17. Primer
18. DNA Probe
19. VNTR
20. Frame shift mutation
21. Horse radish peroxidase
22. Secondary antibodies.

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