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

M.Sc. Molecular Biology & Human Genetics
Second Year (Semester-IV)
July-2019 Examination

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

Paper-I
Biotechnology & Genetics Engineering
Q.P Code : M4201

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 general properties and mechanism of gene therapy in detail.
2. Give a detail account on the construction of genomic DNA and cDNA libraries.

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

3. Explain the properties and applications of any two expression vectors.
4. Describe the applications DNA polymerase, Alkaline phosphatase and Polynucleotide kinase.
5. Discuss the methodology for Transformation selection and screening of transformants.
6. Write a note on the IPR.
7. Write a note on method and applications of gene silencing.
8. Explain the mechanism of action of Cetuximab.
9. Discuss the general procedure for the cloning of PCR product.
10. Write a detail note on site directed mutagenesis.
11. Explain the properties and the applications of Restriction endonucleases in DNA recombinant technology.
12. Enumerate the steps involved in the creation of knock out animals.

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

13. Enlist the applications of recombinant DNA technology.
14. Write a short note on inclusion bodies.
15. Write a short note on induced pluripotent stem cell.
16. Define Protein Bio-similar with an example.
17. Write a note on transformation.
18. Mention the uses of DNA ligase in DNA recombinant technology.
19. Write a short note on recombinant vaccines.
20. Define thrombolytic agents with an example.
21. Write a note on GST tag.
22. State the differences between plasmid and cosmid.

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

July-2019 Examination

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

Paper-II
Molecular Basis of Human Diseases II
Q.P Code : M4192

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

LONG ESSAY

2 X 10 = 20 Marks

1. Explain in details how linkage, crossing over and epistatic interactions interfere with Mendelian inheritance.
2. Discuss the role of genes in drug metabolism. Importance of pharmacogenomics in personalized medicine.

SHORT ESSAY

10X 5 = 50 Marks

3. Write the advantages and disadvantages of Genome wide association studies.
4. How is linkage map constructed?
5. Write the differences between monogenic and polygenic inheritance with examples.
6. How gene-environmental interactions affect phenotypes.
7. Write the parameters of estimation of genetic components of multifactorial traits.
8. Describe the multifactorial basis of Alzheimer's disease.
9. Write the approaches adopted for identifying genetic markers.
10. How genomic imprinting contributes to human diseases?
11. What are the sources of spontaneous mutations
12. Write the genetic basis of Ion-channel diseases.

SHORT NOTE

10 X 3 = 30 Marks

13. Congenital heart malformation.
14. Mitochondrial inheritance.
15. Goals of human genome project.
16. Lethal genes.
17. Genes responsible for Marfan Syndrome.
18. Fragile X Syndrome.
19. Utility of Map distance.
20. Polycystic kidney disease.
21. Positional cloning.
22. Incomplete dominance.

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