SRI DEVARAJ URS ACADEMY OF HIGHER EDUCATION & RESEARCH
(A DEEMED TO BE UNIVERSITY)
M.Sc. Molecular Biology & Human Genetics
Second Year Semester – III, February-2020 Examinations.

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

Paper – I
Medical Genetics
Q.P. Code: M3180

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

Long Essay **10 x 2 = 20 marks**

1. Describe the classification of inheritance patterns of monogenic disorders
2. Explain the methods for prenatal diagnosis of a genetic disorder.

Short Essay **5 x 10 = 50 marks**

3. Describe the genetic basis of neural tube defects, cleft lip and palate.
4. Describe the genetic basis of Down's and Edward's Syndrome.
5. Explain the types of chromosomal translocation.
6. Explain the attributes of chromosome instability syndromes. Give two examples.
7. Describe any two genetic disorders that arise duc to trisomy.
8. Describe the genetic basis of Angelman and Beckwith Wieidemann syndrome.
9. Explain the principle and applications of Q-banding and C-banding
10. Explain the principle and application of exome sequencing.
11. Explain the principle and application of maternal serum screening.
12. Explain the role of genetic testing in breast cancer.

Short Notes **3 x 10 = 30 marks**

13. Distinguish between monogenic and polygenic diseases
14. Describe the classification of dysmorphia with examples
15. Describe the genetic basis of cleft lip and palate
16. List any six indications for genetic testing
17. Describe the legal issue involved in genetic testing
18. Describe the attributes of uniparental disomy
19. Describe the method of preparing FISH probe
20. Draw an example for profile of a heterozygous mutation in a sequencing chromatogram
21. Distinguish between universal screening and high risk screening
22. Distinguish between birth defect and genetic disorder

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Paper – II

Molecular Basis of Human Diseases I

Q.P. Code: M3191

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

Long Essay **10 x 2 = 20 marks**

1. Define carcinogen. Explain its classification.
2. Explain the role of epigenetic factor in the carcinogenesis.

Short Essay **5 x 10 = 50 marks**

3. Explain the molecular basis of tumor angiogenesis.
4. Explain the role of receptor tyrosine kinase in oncogenesis.
5. List the assays for testing carcinogenicity of a chemical substance. Explain the principle of any two assays.
6. Explain the molecular basis of humanpapilloma virus induced cervical carcinoma.
7. Explain the mechanism of action cisplatin.
8. Explain the genetic basis of hereditary fructose intolerance.
9. Explain the genetic basis of phenylketonuria.
10. Explain the genetic basis of orotic aciduria and xanthinuria.
11. Explain the genetic basis of sickle cell anaemia.
12. Explain the genetic basis and inheritance pattern of duchenne muscular dystrophy.

Short Notes **3 x 10 = 30 marks**

13. Describe the attributes of inborn errors of metabolism.
14. Describe the genetic basis of maple syrup urine disease.
15. List the disorders of urea cycle.
16. Describe the molecular basis of Wilson's disease.
17. Describe the genetic basis of retinoblastoma.
18. Distinguish between somatic and germline mutation.
19. Describe the attributes of anchorage independent growth of cancer cell.
20. Distinguish between mutagen and carcinogen.
21. Describe the principle of cell transformation assay carcinogen testing.
22. Distinguish between familial and sporadic cancers.

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Paper – III

ResearchMethodology and Biostatistics

Q.P. Code: M3200

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

Long Essay 10 x 2 = 20 marks

1. Give the classification of study design
2. Discuss various methods of presentation of data with examples

Short Essay 5 x 10 = 50 marks

3. Distinguish between descriptive and analytical studies
4. Explain Linear Regression methods with examples
5. Explain the salient features of meta-analysis
6. Explain the process of blinding in clinical trials
7. Explain procedure of Testing of hypothesis
8. Describe the different types of non-Probability sampling methods
9. Explain the salient features of Good Clinical Practice
10. Justify the need ethics review in biomedical research
11. Describe the uses of Chi-square test in data analysis
12. Explain the measures of dispersion

Short Notes 3 x 10 = 30 marks

13. Distinguish between hypothesis and null hypothesis
14. Describe the salient features of PubMed
15. List the attributes of paired t test
16. List the methods of data collection
17. Explain the significance of keywords in electronic literature search
18. Distinguish between text book and monograph
19. Classify tests of significance
20. List the uses of Wilcoxn signed rank test
21. Define ogives
22. Explain the attributes of International Conference on Harmonization 3

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