SRI DEVARAJ URS ACADEMY OF HIGHER EDUCATION & RESEARCH
(A DEEMED TO BE UNIVERSITY)
M.Sc. Molecular Biology & Human Genetics (Semester - II)
November 2022 Examination

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

Molecular Basis of Human Diseases I

Q.P. Code: M2551

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

Long Essay — 10 x 2 = 20 marks

1. Describe any five properties of a cancer cell.
2. Explain the mechanism of action of cisplatin, taxol and 5-fluorouracil.

Short Essay — 5 x 10 = 50 marks

3. Describe the stages of carcinogenesis.
4. Describe the role of tumor suppressor gene in carcinogenesis using *RB1* as an example.
5. Describe the mechanism of carcinogenesis induced by intercalating agents and base analogs.
6. Describe the attributes of familial cancer. Give four examples of familial cancer and their causative genetic factor.
7. Describe the molecular basis of radiotherapy.
8. Describe the genetic basis of galactosemia.
9. Describe the genetic basis of alkaptonuria.
10. Describe the genetic basis of androgen insensitivity syndrome
11. Describe the genetic basis of thalassemia
12. Describe the genetic basis and inheritance pattern of duchenne muscular dystrophy.

Short Notes — 3 x 10 = 30 marks

13. Describe the attributes of enzymopathy.
14. Describe the genetic basis of glycogen storage disease.
15. List the disorders of urea cycle.
16. Describe the molecular basis of Wilson's disease.
17. Describe the genetic basis of retinitis pigmentosa.
18. Distinguish between somatic and germline mutation.
19. Describe the attributes of proto-oncogene.
20. Describe IARC classification of carcinogens with examples.
21. Describe the principle of in vitro micronucleus assay for carcinogen testing.
22. List four chemotherapy and radiotherapy induced toxicities. Describe the cellular basis of toxicities.

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M.Sc. Molecular Biology & Human Genetics

First Year (Semester-II)

November 2022 Examination

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

PHYSIOLOGY

Q.P Code: M2560

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

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

1. Draw a neat labelled diagram of neuro muscular junction. Explain transmission across neuro muscular junction with a flow chart
2. Describe the mechanism of Hcl secretion in the stomach.

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

3. Describe the functions of surfactant
4. Explain the mechanism of chloride shift
5. Describe primary active transport with example
6. Draw a neat labeled diagram of conducting system of the heart.
7. Classify hypoxia with examples.
8. Draw a neat labelled diagram of nephron & give their functions
9. Mention normal serum calcium levels. List 3 hormones and 3 target tissues on which they act
10. List the functions of hypothalamus
11. List the functions of ovary
12. List contents of middle ear & its functions

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

13. State Landsteiner's law
14. classify body fluid compartments
15. List the taste sensations
16. List the contraceptive methods in males
17. List the effects of parasympathetic stimulation on heart
18. List neuroglia cell with their function
19. List the hormones secreted by posterior pituitary
20. Define GFR. Give the normal value.
21. List the functions of bile
22. Mention the factors that shift oxy-Haemoglobin curve to Left.

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M.Sc. Molecular Biology & Human Genetics
First Year (Semester-II) November 2022 Examination

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

Q.P. Code: M2570

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

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

1. Define & Classify Sterilization. Draw a neat labeled diagram of the Hot air oven and describe its Principle and uses. (2+2+2+1+2)
2. Describe the source, modes of transmission, clinical features and samples to be collected & diagnostic methods for Tuberculosis. (1+1+3+2+3)

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

3. Spores: Structure, functions, methods of detection, clinical significance.
4. Different modes of transmission of Infections with examples.
5. Differences between Endotoxin & Exotoxin.
6. Classical complement pathway.
7. Vaccines: types with examples.
8. Map the lesions of *Streptococcus pneumoniae* on Human body.
9. Map the lesions of *Mycobacterium tuberculosis* on Human body.
10. Map the lesions of Dermatophytes on Human body.
11. Bacteriophage: structure & clinical significance.
12. Influenza virus: Structure, mode of transmission, clinical significance.

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

13. Name any three scientists & their contributions to Microbiology.
14. Enumerate 3 lymphoid organs.
15. Enumerate 3 immunodeficiency diseases.
16. Enumerate the target sites for antibiotics.
17. Enumerate 3 diseases transmitted by Inhalation.
18. Enumerate 3 DNA viruses.
19. Enumerate 3 opportunistic mycoses.
20. Classify Fungus based on morphology.
21. Enumerate 3 killed vaccines.
22. Enumerate 3 Arboviral diseases.

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