

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

M.Sc. Molecular Biology & Human Genetics

First Year (Semester-I)

February-2019 Examination

Time: 3.00 Hrs

ANATOMY

[Max. Marks: 100]

Q.P. Code: M1110

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

LONG ESSAYS

2x10=20 Marks

1. Describe the sulci and gyri with functional areas on Superolateral surface of Cerebrum.
(3+3+4)
2. Illustrate the right kidney under following headings a) Gross features b) Relations c) Blood supply d) Applied aspects (3+4+2+1)

SHORT ESSAYS

10X5=50 Marks

3. Summarize the external and internal features of Right atrium.
4. Illustrate the microscopic structure of Pituitary gland.
5. Illustrate the structures forming the stomach bed.
6. Summarize the nerve supply of Tongue.
7. Describe the pulmonary and systemic circulation.
8. Define Bone. Classify the bones.
9. Illustrate the structure of Neuron and classify the neurons.
10. Describe the Costo mediastinal and Costo diaphragmatic recess of pleura.
11. Enumerate the stages of Spermatogenesis
12. Describe the external features of Medulla oblongata.

SHORT NOTES

10X3=30 Marks

13. Name the bone cells.
14. Name the layers of eyeball.
15. List the structures forming Placental barrier.
16. Name the ear ossicles.
17. Name the parts of Uterus.
18. Illustrate the microscopic structure of Lymph node.
19. Name the parts of Ureter.
20. Name the coverings of Kidney.
21. Name the parts of Pancreas.
22. List the differences between small and large intestine.

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Biochemistry

[Max. Marks: 100]

Q.P. Code: M1130

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Long Essay

2 x 10 = 20 Marks

1. Describe the chemistry, sources, recommended daily allowance, biochemical functions and deficiency manifestations of vitamin A (1+1+1+3+4)
2. Explain the principle of electrophoresis. Explain the different types of blotting techniques and their applications (2 + 5 + 3)

Short Essay

10 x 5 = 50 Marks

3. Explain the principle of centrifugation. Add a note on the different types of centrifuges with its applications (2 + 3)
4. Explain mechanism of acid base balance.
5. List the different bile salts. Explain their role in lipid digestion and deficiency manifestations of bile salts. (1+2+2)
6. Describe the biochemical functions and deficiency manifestations of pantothenic acid (3 + 2)
7. Enumerate the sources of reducing equivalents. Describe two shuttles involved in transfer of reducing equivalents from cytoplasm to mitochondria.(1+4)
8. Explain Michaelis-Menten equation.
9. Explain the steps involved in salvage pathway of purine biosynthesis.
10. Explain the basis of protein misfolding.
11. Explain Watson and Crick model of DNA structure.
12. Define disaccharides. Give three examples with its composition, structure and biomedical importance. (2 + 3)

Short Answers

10 x 3 = 30 Marks

13. Why sucrose is non-reducing sugar and why it is called as invert sugar?
14. Define amino acid and draw its general structure. (2 + 1)
15. Differentiate between primary, secondary and tertiary structures of protein.
16. Differentiate between nucleotide and a nucleoside.
17. Describe coenzyme with two examples. (2 + 1)
18. List the functions of cholecalciferol.
19. Explain the steps involved in excretion.
20. Define isomers. List different types of isomers that exist in biological system. (1 + 2)
21. Explain the principle and applications of flow cytometry. (2 + 1)
22. Mention the three causes of metabolic and respiratory acidosis.

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Time: 3.00 Hrs

Microbiology

[Max. Marks: 100]

Q.P. Code: M1140

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 labeled diagram of Bacterial Cell. Describe the Structure, functions, methods of detection, clinical significance of Cell wall. (2+2+2+2+2)
2. Define & Classify Immunity. Describe the mechanisms of Innate Immunity. (2+2+6)

SHORT ESSAY

10 X 5 = 50 Marks

3. Bacterial growth curve.
4. Polymerase chain reaction : principle & applications.
5. Nosocomial Infections: Types & Prevention.
6. Standard precautions.
7. IgM Structure, properties & clinical significance.
8. Monoclonal antibodies: definition, production & uses.
9. Mechanisms of Type 1 Hypersensitivity.
10. Map the lesions of *Streptococcus pyogenes* on Human body.
11. Map the lesions of *Candida albicans* on Human body.
12. HIV Structure, modes of transmission.

SHORT ANSWERS

10 X 3 = 30 Marks

13. Differences between Antiseptics & disinfectants.
14. Enriched media with examples.
15. Enumerate 3 autoimmune diseases.
16. Enumerate 3 immunodeficiency diseases.
17. Structure of influenza virus.
18. Enumerate 3 zoonotic infections.
19. Enumerate 3 Arboviral diseases.
20. Enumerate 3 live attenuated vaccines.
21. Name 3 gaseous disinfectants.
22. Enumerate 3 antigen antibody reactions.

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M.Sc. Molecular Biology & Human Genetics

First Year (Semester-I)

February 2019 Examination

Time : 3.00 Hrs.

[Max. Marks : 100]

PHYSIOLOGY

Q.P Code : M1120

Your answers should be specific to the questions asked.

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LONG ESSAY

2 X 10 = 20 Marks

1. Define haemostasis .Explain the role of platelets in formation of temporary hemostatic plug
2. Describe the mechanism of Hcl secretion in the stomach.

SHORT ESSAY

10X 5 = 50 Marks

3. Describe haemophilia
4. Describe facilitated diffusion with example
5. Draw a neat labelled diagram of neuro- muscular junction
6. Describe the Physiological factors affecting blood pressure
7. describe the oxygen haemoglobin - dissociation curve
8. List the differences between cortical & juxtamedullary nephron
9. List the functions of cerebellum
10. Mention normal serum calcium levels. List 3 hormones and 3 target tissues on which they act
11. List the contraceptive methods for males & females
12. List the special senses & Mention their receptors

SHORT Notes

10 X 3 = 30 Marks

13. Classify hypoxia with examples
14. Define myopia & give its correction
15. List the functions of ovary
16. List the effects of parasympathetic stimulation on heart
17. List the hormones secreted by adrenal medulla
18. List the steps involved in urine formation
19. List the functions of respiratory system.
20. List the functions of saliva
21. Classify WBC
22. Draw a neat labelled diagram of neuron