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

M.Sc. Molecular Biology & Human Genetics

First Year (Semester-I)

July 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 Urinary bladder under the following headings a) External and internal features b) Blood supply c) Nerve supply d) Applied anatomy. (4+2+3+1).
2. Describe Tongue under the following headings a) Gross features b) Muscles c) Nerve supply d) Applied Aspects. (2+4+2+2)

SHORT ESSAYS **10X5=50 Marks**

3. Describe the external features of Medulla oblongata.
4. Describe the vermiform appendix with clinical significance.
5. Illustrate the microscopic structure of Testis.
6. Illustrate the distribution of right coronary artery.
7. Discuss briefly the process of fertilization and its effects.
8. Illustrate the mediastinal surfaces of Lungs.
9. Describe briefly about the supports of Uterus.
10. Define bone. Classify the bones with examples.
11. Describe the formation, tributaries and termination of Great saphenous vein.
12. Describe the boundaries and contents of Middle ear.

SHORT NOTES **10X3=30 Marks**

13. Illustrate the microscopic structure of Hyaline cartilage.
14. Name the parts of Pharynx.
15. List the tributaries of Coronary sinus.
16. Sesamoid bone – Features and Functions.
17. Name the parts of Pancreas.
18. Name the parts of Ureter.
19. Name the layers of eye ball.
20. List the boundaries of Epiploic foramen.
21. Name the parts of Uterus.
22. Give examples for Fibrous joints.

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

Q.P. Code: M1130

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

1. Explain the factors affecting enzyme activity with suitable graphs (4 + 6)
2. Define and classify polysaccharides. Give two examples for each type with their composition. List the biological significance of polysaccharides (1+3+2+5)

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

3. Define amino acid. Classify based on structure and also based on essentiality. (1 + 2 + 2)
4. Define ampholytes. Explain the term isoelectric point and its significance. (1+2+2)
5. Explain the Watson and Crick model of DNA structure.
6. Explain Michaelis-Menten equation.
7. Enumerate high energy phosphate compounds. Write the differences between oxidative phosphorylation and substrate level phosphorylation with examples.(2+3)
8. Define vitamins. Classify vitamins based on their solubility.
9. List the different bile salts. Explain their role in lipid digestion and deficiency manifestations of bile salts. (1+2+2)
10. Define pH, an acid, a base and a buffer. Differentiate between strong acid and weak acid. (3 + 2)
11. Explain the different types of blotting techniques with its applications. (4 + 1)
12. Describe the biochemical functions and deficiency manifestations of ascorbic acid. (3 + 2)

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

13. Explain the steps involved in excretion.
14. List the biological functions of macronutrients.
15. Define the terms solute, solvent and solution with an example for each.
16. Draw the different isomeric forms of glucose.
17. Define anion gap. Mention the normal anion gap.
18. Explain the principle and applications of spectrophotometry.
19. Define and classify lipids.
20. Define ketone bodies and add a note on ketosis.
21. Classify proteins based on their functions.
22. Define glycoproteins. Give two examples with its biological functions.

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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. Enumerate 4 methods of genetic transfer in Bacteria. Describe Conjugation (4+6)
2. Describe the source, modes of transmission, clinical features, complications, samples to be collected & diagnostic methods for Tuberculosis (1+1+4+2+2)

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

3. Flagella : Structure, type, functions, methods of detection, clinical significance.
4. Bacterial growth curve.
5. Hot Air Oven : Principle, holding time, uses & controls used.
6. Recombinant DNA technology.
7. Nosocomial Infections : Types & Prevention.
8. Classical complement pathway.
9. Map the lesions of dermatophytes on Human body.
10. Map the lesions of *Candida albicans* on Human body.
11. ELISA: Types & applications.
12. Vaccines : types & examples.

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

13. Enumerate 3 skin antiseptics.
14. Enumerate the target sites for antibiotics.
15. Artificial passive immunity.
16. Structure of HIV.
17. Structure of Bacteriophage.
18. Enumerate 3 diseases transmitted by Inhalation.
19. Enumerate 3 intestinal nematodes.
20. Enumerate 3 opportunistic mycoses.
21. Enumerate 3 blood parasites.
22. Enumerate 3 opportunistic mycoses.

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

PHYSIOLOGY

Q.P Code : M1120

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

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

1. List the phases of deglutition. Describe the 2nd stage of deglutition.
2. With neat labelled diagrams show the errors of refraction & their correction

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

3. Define blood pressure. Give the normal values
4. List the functions of a) outer ear b) middle ear c) inner ear
5. List the contraceptive methods for males & females
6. Explain the steps involved in phagocytosis.
7. List the properties of cardiac muscle.
8. Classify hypoxia with examples.
9. Draw a neat labeled diagram of juxtaglomerular apparatus and explain its functions.
10. Mention the function of aldosterone and its site of action.
11. List the functions of Basal Ganglia
12. classify body fluid compartments, give the volume of each compartment

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

13. List the l factors affecting cardiac output
14. Define passive transport mechanism
15. List the function of testis
16. List the taste sensations
17. Define synapse
18. List the functions of ADH
19. Define GFR. Give the normal value.
20. List the functions of WBC
21. List the functions of saliva
22. Mention the factors that shift oxy-Hemoglobin curve to right

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