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

M.Sc. Molecular Biology & Human Genetics

First Year Semester-I, February-2020 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 Thyroid gland under the following headings with suitable diagrams - a) Gross features b) Coverings c) Relations d) Clinical significance. (2+2+4+2)
2. Describe Prostate gland under the following headings a) Coverings b) Lobes c) Relations d) Microscopic features. (2+2+2+4)

SHORT ESSAYS **10X5=50 Marks**

3. Gross features of vermiform appendix with clinical significance.
4. Illustrate the microscopic structure of Testis.
5. Describe the external and internal features of Right atrium.
6. Describe the second part of Duodenum – relations and internal features.
7. Describe briefly about the supports of Uterus.
8. Describe the Cartilaginous joints with examples.
9. Illustrate the anterior relations of Right and Left kidneys
10. Illustrate the mediastinal surfaces of Lungs.
11. Gross features, ligaments and blood supply of spleen.
12. Describe the structure of Graffian follicle.

SHORT NOTES **10X3=30 Marks**

13. Mention the parts of eye ball.
14. Name the branches of arch of aorta.
15. Define anatomical position.
16. Name the carpal bones.
17. Illustrate the microscopic structure of pancreas.
18. Name the parts of fallopian tube.
19. Name the coverings of Testis.
20. List the cranial nerves in order.
21. Mention the structure and functions of Rods and Cones.
22. Mention the functions of Placenta.

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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. Describe spermatogenesis.
2. Define action potential.Draw a neat labelled diagram of an action potential depicting the ionic basis for the same.

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

3. List the functions of liver
4. Describe secondary activc transport with example
5. Explain the mechanism of chloride shift
6. Describe the steps involved in Humoral Immunity
7. Describe the functions of surfactant
8. Describe the mechanism of Hcl secretion in the stomach.
9. List the differences between cortical & juxtamedullary nephron
10. Mention the function of aldosterone and its site of action.
11. Draw a neat labelled diagram of reflex arc
12. List contents of middle ear & its functions

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

13. List the effects of parasympathetic stimulation on heart
14. List the differences between first heart sound & Second Heart sound
15. classify body fluid compartments
16. List the taste sensations
17. List the hormones secreted by posterior pituitary
18. Draw a neat labelled diagram of neuron
19. Define GFR. Give the normal value.
20. List the functions of saliva
21. List the functions of plasma proteins
22. Mention the factors that shift oxy-Haemoglobin curve to right

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

Biochemistry

Q.P Code: M1130

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Long Essay **2x10 = 20 Marks**

1. Describe how Vitamin D is synthesized in the body. Explain its Biochemical functions and deficiency manifestations of Vitamin D. (4+4+2)
2. Define Enzymes. Classify enzymes. Give one examples for each class and the reaction catalyzed by them. (1+5+4)

Short Essay **5x10 = 50 Marks**

3. Classify Polysaccharides. Describe the biomedical importance of any two homopolysaccharides. (3+2)
4. Classify amino acids based on the chemical structure with suitable examples. (3+2)
5. List five functions of phospholipids.
6. Compare and contrast DNA and RNA with reference to
   a. Composition and structure b.Location c. Function (3+1+1)
7. Write the principle, Instrumental Components of colorimetry. (2+3)
8. What is meant by primary structure of proteins? What is its significance? How is primary structure determined? (1+2+2)
9. Explain the Koshland Induced fit theory to describe the mechanism of action of enzymes.
10. Define BMR. Describe the factors affecting BMR (1+4)
11. Describe in detail the process of Digestion and Absorption of Proteins in the body. (3+2)
12. Describe the principle and applications of Agarose gel electrophoresis. (3+2)

Short Answers **3x10=30 Marks**

13. Explain the reducing property of sugars. How do you test this property?
14. Define uncouplers. Give an example of physiological uncoupler.
15. What is active site of an enzyme? List 4 features of active site.
16. What is SDA? Mention its significance.
17. What are Ampholytes? Give example.
18. What are lipoproteins? Give four examples.
19. What is biological value of protein? Mention its significance
20. Define proenzyme. Give two example.
21. What is substrate level phosphorylation? Give two examples.
22. Define colloidal state. list the properties of Colloids.

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M.Sc. Molecular Biology & Human Genetics
First Year Semester-I, February-2020 Examination

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 Enteric fever. (1+1+3+2+1+2)

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

3. Contributions of Louis Pasteur
4. Spores : Structure, functions, methods of detection, clinical significance
5. Different modes of transmission of Infections with examples
6. Target sites for Antibiotics with examples
7. Map the lesions of *Mycobacterium tuberculosis* on Human body
8. Monoclonal antibodies : definition, production & uses
9. Describe the mechanisms of Autoimmunity
10. Agglutination : definition, principle, types , uses
11. Viral replication
12. Bacteriophage : structure & clinical significance

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

13. Enumerate the Infections caused by Pneumococcus
14. Enumerate 3 Clostridium species and diseases associated with them
15. Complications of Cornynebacterium diphtheriae
16. Artificial passive immunity
17. Types of hypersensitivity
18. Structure of HIV
19. Enumerate 3 Arboviral diseases
20. Enumerate 3 opportunistic mycoses
21. Enumerate 3 Dermatophytes
22. Kochs postulates

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