SRI DEVARAJ URS ACADEMY OF HIGHER EDUCATION & RESEARCH

(A DEEMED TO BE UNIVERSITY)

M.Sc. Molecular Biology & Human Genetics
First Year (Semester-I)
February – 2016 Examination

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

Paper-I

ANATOMY

Q.P. Code: MBHG - 101

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

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

1. Describe the blood supply of the brain under the following headings.
   a) Arterial supply
   b) Venous drainage
   c) Applied aspects
2. Classify joints with suitable examples and brief description of each.

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

3. Sternocostal surface of the heart.
4. Great saphenous vein.
5. Formation of the brachial plexus.
6. Histology of thymus – draw a neat labeled diagram.
7. Give a brief overview of the foetal circulation.
8. Portal circulation and its applied aspects.
9. Walls of the middle ear cavity.
10. Typical spinal nerve.
11. Compare and contrast: cardiac and skeletal muscle.
12. Nuclei of the thalamus.

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

13. Name the fontanelle of the foetal skull.
14. Name the types of papillae of the tongue and mention their location.
15. Movements of the ankle joint.
16. Sex differences in the articulated pelvis.
17. Sternal angle.
18. Enumerate the muscles forming the anterior abdominal wall.
19. Cleavage.
20. Corpus callosum – parts.
21. Flexor retinaculum of hand.
22. Dorsal venous arch of the foot.

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Paper – II
PHYSIOLOGY
Q.P. Code: MBHG - 103

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

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

1. Describe various mechanisms of body temperature regulation. Add a note on hypothermia and hyperthermia.
2. Describe the visual pathway with the help of a neat diagram. Describe the effects of lesions to the visual pathway.

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

3. What are the functions of basal ganglia? Add a note on parkinsonism.
4. Neural regulation of respiration.
5. Peculiarities of coronary circulation.
6. Uterine changes in menstrual cycle.
7. Describe the regulation of gastric secretion.
8. Differences between skeletal and smooth muscles.
9. Erythropoiesis and factors affecting it.
10. Differences between pyramidal and extrapyramidal tracts.
11. Functions of gastrin and secretin.
12. Describe the salient features of cerebral circulation.

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

13. Three mechanisms of CO_2 transport.
14. Three properties of synapse.
15. Give normal values of heart rate, cardiac output and blood pressure.
16. Three important functions of saliva.
17. Tests for pregnancy.
18. Functions of Juxta Glomerular apparatus (JGA).
19. Write a neat and labeled diagram of action potential.
20. Functions of platelets.
21. Name three anticoagulants and their mechanism of action.
22. Name the hormones of anterior pituitary.

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Paper – III

BIOCHEMISTRY

Q.P. Code: MBHG - 105

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

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

1. What are enzymes? Explain the various factors affecting the enzyme activity.
2. Classify lipids with suitable examples and write their functions.

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

3. Electrophoresis and its application.
4. Name of the coenzyme of thiamine and mention its biological function with an example.
5. Difference between starch and glycogen.
6. Biologically important peptides.
7. Name different types of RNA and write their functions.
8. Biological function of vitamin K.
9. Chemiosmotic theory of oxidative phosphorylation.
10. Blood buffer systems.
11. Separation of cell organelles.
12. Classification of proteins with examples.

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

13. Rickets.
14. Colloidal solution.
15. Denaturation of proteins.
16. Calorific value of carbohydrates, proteins and lipids.
17. Affinity chromatography.
18. Kwashiorkor.
19. Mechanism of absorption of glucose.
20. Inhibitors of electron transport chain.
21. Chargaff's rule.
22. Chloride shift.

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Paper – IV

MICROBIOLOGY

Q.P. Code : MBHG-109

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

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

1. Define sterilization. Briefly explain about the principle and working of an autoclave.
2. Define and classify immunity. Discuss the mechanisms of innate immunity.

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

3. Fluorescent microscope.
4. Type III hypersensitivity.
5. Super antigens.
6. ELISA.
7. Laboratory diagnosis of fungal infections.
8. Cultivation of viruses.
9. Disorders of complement.
10. Gram's staining.
11. Flagella.
12. Bacterial growth curve.

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

13. Prions.
14. Adjuvants.
15. SCID mice.
16. Name three RNA viruses.
17. Herd immunity.
18. Enriched media.
19. Name three gaseous disinfectants.
20. Resistance transfer factor.
21. Draw a neat labeled diagram of Ig G.
22. Glycocalyx.

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