SRI DEVARAJ URS ACADEMY OF HIGHER EDUCATION & RESEARCH
(A DEEMED TO BE UNIVERSITY)
M.Sc. Medical Laboratory Technology (M.Sc. MLT)
Semester-IV (September-2020) Examination

Time: 2 Hrs. **[Max. Marks: 60]**

Paper - I

Hematology

Q.P. Code:M4090

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

LONG ESSAY 1 X 10 = 10 Marks

1. List the coagulation disorders and describe the clinical features, pathogenesis and laboratory diagnosis in Hemophilia

SHORT ESSAY 7 X 5 = 35 Marks

2. Describe quality control in hematology
3. Describe Stages of Thrombopoiesis
4. Describe automation in hematology
5. Describe the indications, principle & interpretation of prothrombin time
6. Describe biomedical waste management in hematology
7. Describe the etiopathogenesis in Disseminated Intravascular Coagulation
8. Describe the approach in a case of thrombocytopenia

SHORT ANSWERS 5 X 3= 15 Marks

9. List the laboratory investigations for fibrinolytic system
10. Describe Urea Solubility test and its utility
11. List 03 Romanowsky stains and describe the principle
12. Describe the laboratory findings in Immune thrombocytopenic Purpura
13. List the sites and indications for bone marrow aspiration

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M.Sc. Medical Laboratory Technology Semester-IV

September - 2020 Examination.

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Paper-I

Blood Transfusion

Q.P Code: M4100

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

LONG ESSAY 1 X 10 = 10 Marks

1. List the transfusion transmitted infections. Describe the laboratory investigation to diagnose these infections

SHORT ESSAY 7 X 5 = 35 Marks

2. Describe the donor selection criteria
3. Define apheresis and list the types and indications for apheresis
4. Describe biomedical waste management in blood bank
5. Define stem cell banking and list the methods and utility of stem cell banking
6. Describe quality control in blood bank
7. Describe the drug controller regulation in blood bank
8. Describe the laboratory investigations in transfusion reaction

SHORT ANSWERS 5 X 3= 15 Marks

9. List 03 indications of platelet transfusions
10. Define exchange transfusion and list the indications
11. List the types of cross matching and the principle of cross matching
12. Describe biobanking
13. Define Graft vs host disease

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Paper-I

Clinical Biochemistry

Q.P Code: M4441

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

LONG ESSAY **1x10=10**

1. Define electrophoresis and mention its principle. Write a neat labeled diagram of the electrophoresis apparatus and elaborate the procedure of agarose gel electrophoresis. Mention four applications of electrophoresis (1+2+2+3+2)

SHORT ESSAY **7X5=35**

2. Define venepuncture. Describe the precautions and steps in performing venepuncture (1+1+3)
3. Write the principle of Ion Selective Electrode (ISE) with a neat labeled diagram (2+3)
4. Define Point Of Care Testing (POCT). Classify the types of POCT technology. Describe advantages and disadvantages of POCT (1+1+3)
5. Define therapeutic drug monitoring (TDM). Define therapeutic index. Describe the mechanism of action of a drug (1+1+3)
6. Define pH. Mention the normal reference range of blood pH and the instrument used for measuring the pH. Write the principle of arterial blood gas analysis (1+1+3)
7. Define Chromatography. Describe the principle and procedure of thin layer chromatography with applications (1+2+2)
8. Describe the principle, components and applications of spectrophotometer (1+2+2)

SHORT ANSWERS **5X3=15**

9. Arterial blood gas analysis (ABG) changes noticed in a patient with COVID-19 pneumonia
10. Write any three indications for therapeutic drug monitoring (1+1+1)
11. Write a note on blood sample collection in newborn screening for Inborn Errors of Metabolism (IEM)
12. List the pre-analytical factors in pediatric laboratory testing
13. Write a note on sweat chloride test

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Paper-II

Metabolism & Metabolic Disorders

Q.P Code: M4442

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

Long Essay **1x10=10**

1. A 38 year vegetarian female presented to the Doctor with fatigue and tingling/numbness in her extremities. The symptoms were gradually getting worse over the last year. On examination, she was pale with tachycardia. Neurological examination revealed numbness in all extremities with decreased vibration senses. CBC demonstrated Megaloblastic anemia. What is the most likely diagnosis? What are the two most common causes for Megaloblastic anemia? How would this patient's history and examination differentiate the two? What are the sources, RDA and biochemical functions of the vitamin responsible for this deficiency? (1+1+2+1+1+4)

Short Essay **7X5=35**

2. Write any four functions of copper and disorders of copper metabolism (2+3)
3. What are the biochemical changes during starvation?
4. Define Basal Metabolic Rate (BMR). Describe the factors affecting the BMR. (1+4)
5. What are vitamins? How are they classified? List the differences between water soluble vitamins and fat soluble vitamins. (1+1+3)
6. Describe the ATP synthase complex. Add a note on inhibitors of ATP synthase (3+2)
7. Name thyroid hormones. How they are formed? Mention two techniques available for estimating thyroid hormones (1+2+2)
8. Give two examples of Radioisotopes and its applications in medicine (2+3)

Short Answers **5X3=15**

9. Describe the role of Parathormone (PTH) in calcium homeostasis
10. What are provitamins? Give two examples (1+2)
11. Mention any three diseases related to the ill effects of obesity
12. Define Glycemic index. How is it calculated? (1+2)
13. What is P:O Ratio? What is its importance? (1.5+1.5)

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Paper - I

Systemic Bacteriology, Applied Microbiology & Immunology

Q.P. Code:M4451

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

LONG ESSAY **1 X 10 = 10 Marks**

1. What is acquired immunity? Describe its mechanism, the cell involved in acquired immunity

SHORT ESSAY **7 X 5 = 35 Marks**

2. Laboratory diagnosis of Syphilis

3. Laboratory diagnosis of Cholera.

4. Describe the methods of Antibiotic susceptibility testing

5. Laboratory diagnosis of Typhoid fever

6. Describe the methods of collection and laboratory diagnosis of UTI.

7. Immuno fluorence test principle, types and application

8. Describe the structure of IgM with a diagram. Describe the biological functions of IgM

SHORT ANSWER **5 X 3 = 15 Marks**

9. List 3 agents causing meningitis

10. Enumerate the biochemical characteristics of Pseudomonas aeruginosa

11. Bacterial toxins

12. List 3 autoimmune diseases.

13. Enumerate 3 agents causing hospital acquired infections.

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M.Sc. Medical Laboratory Technology (M.Sc. MLT) Semester - IV

September-2020 Examination

Time: 2.00 Hrs. **[Max. Marks: 60]**

Paper – II

Microbiology

Virology and Paracitology

Q.P. Code: M4452

Your answers should be specific to the questions asked.

Draw neat labelled diagrams wherever necessary.

LONG ESSAY **1 X 10 = 10 Marks**

1. Enumerate the viruses causing hepatitis. Describe the pathogenesis, clinical manifestations, and lab diagnosis of Hepatitis B virus.

SHORT ESSAY **5 X 7 = 35 Marks**

2 Describe the pathogenesis, laboratory diagnosis, complications and prevention of Dengue.

3. Post exposure prophylaxis against HIV in health care workers

4. Describe the pathogenesis & laboratory diagnosis of Herpes simplex Type I.

5. Describe the clinical manifestations, laboratory diagnosis of Rabies

6. Describe the laboratory diagnosis of Malaria

7. Describe the Life cycle of hookworm

8.Describe the clinical manifestations,laboratory diagnosis and complications of Mumps

SHORT ANSWER **5 X 3 = 15 Marks**

9. List 3 viruses causing Malignancies

10. List three viruses causing diarrhoea

11. Explain the term Antigenic shift

12. Draw a neat labeled diagram of Trichuris egg

13. Enumerate 3 stool concentration techniques

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