

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

M.Sc. Medical Laboratory Technology (Semester-IV)
September 2021 Examination

Time : 3.00 Hrs.

[Max. Marks : 100]

Paper-I

HEMATOLOGY

Q.P Code : M4090

Your answers should be specific to the questions asked.

Draw neat labelled diagrams wherever necessary.

LONG ESSAYS 2x10=20 Marks

1. Define hemorrhagic disorder. Discuss the causes, pathogenesis and clinical features of primary hemostasis. Write in detail about laboratory approach in primary hemostasis. (1+2+2+1+4)
2. Define Thrombocytopenia. Enlist the causes of Thrombocytopenia. Write in detail about pathogenesis and laboratory approach in a case of thrombocytopenia. (1+2+3+4)

SHORT ESSAYS

10x5=50 Marks

3. Write the principle & interpretation of prothrombin time (2+3)
4. Quality control in haematology laboratory.
5. Laboratory investigations of Antiphospholipid syndrome.
6. Explain the indications and staining of bone marrow aspiration. (3+2)
7. How do you manage Bio-medical waste.
8. Describe the investigations in Disseminated Intravascular Coagulation
9. Enlist the causes of qualitative platelet disorders and discuss any one. (2+3)
10. Write pathogenesis and lab investigations of Hemolytic Uremic Syndrome
11. Describe the Stages of thrombopoiesis.
12. Describe the Clinical features, inheritance and laboratory diagnosis of Haemophilia-A. (1+2+2)

SHORT ANSWERS 10x3=30 Marks

13. Name Three lab investigation for fibrinolytic system
14. Interpretation of Urea solubility test.
15. Name three important laboratory findings in Thrombotic thrombocytopenic purpura (TTP)
16. Name three causes of thrombocytosis
17. Name three relevant laboratory findings in liver disease.
18. Name Three causes of acquired haemolytic anaemia.
19. Name three laboratory findings in Haemophilia B.
20. Name three causes of coagulation inhibitors.
21. List out six Romanowsky stains
22. List out the second line of tests for coagulation disorders.

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Paper-II
BLOOD TRANSFUSION
Q.P Code : M4100

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

LONG ESSAY

2x10=20 Marks

1. Define types of transfusion; write a note on autologous transfusion.
2. Define stem cell banking, advantage and disadvantages and methods of stem cell banking.

SHORT ESSAY

10x5 =50 Marks

3. Describe the pathogenesis and causes of extravascular transfusion reaction.
4. Write the pathogenesis and lab investigations in febrile non-haemolytic transfusion reaction.
5. Define and write the indications of exchange transfusion.
6. Criteria for exchange transfusion in Rh haemolytic disease of new born.
7. Screening tests for Hepatitis B infection.
8. Lab diagnosis of syphilis infection.
9. Coombs test.
10. Donor selection.
11. Romanowsky stains.
12. Machines used for heamapheresis.

SHORT ANSWERS

10x3 =30 Marks

13. Name six blood group systems.
14. Serological markers of simple carriers.
15. Malarial parasite test.
16. Immediate saline technique.
17. Name three indications of whole blood transfusion .
18. Six causes of haemolytic transfusion reaction.
19. Serological tests for HIV infection.
20. LISS technology.
21. Advantages and disadvantages of walking donor programme.
22. Name three red cell substitutes.

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

September 2021 Examinations

Time: 3 Hrs.

[Max. Marks: 100]

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

2x10=20

1. Define electrophoresis and mention its principle. Write a neat labeled diagram of the electrophoresis apparatus and elaborate on the procedure of Agarose Gel electrophoresis. Mention four applications of electrophoresis (1+2+2+3+2)
2. What is ISE? Explain the principle and working of an ISE with a neat diagram (1+3+6)

Short Essay

10X5=50

3. Describe the pre-analytical factors in pediatric laboratory testing
4. Explain principle and procedure of Ion exchange chromatography (2+3)
5. Explain the principle and procedure of Flame photometry (2+3)
6. Describe the principle, advantage and applications of spectrophotometer (1+2+2)
7. Briefly explain the procedure of Collection of an Arterial blood sample
8. Describe the toxicology profile of Alcohol.
9. Define Point Of Care Testing (POCT). Classify the types of POCT technology. Describe advantages and disadvantages of POCT (1+1+3)
10. Explain blood sample collection in a new born infant. Add a short note on Respiratory distress syndrome (2.5+2.5)
11. Define pH. Give the procedure for measuring pH of a solution (1+4)
12. Write a short note on advantages and Limitations of Glucometer

Short Answers

10X3=30

13. Write 3 uses of Automation in a Clinical Laboratory
14. Write a note on blood sample collection in newborn screening for Inborn Errors of Metabolism (IEM)
15. Enumerate three anti-coagulants used in Clinical biochemistry blood sample collection and mention the uses (1+1+1)
16. Clinical features of Organophosphorous poisoning
17. Describe briefly Personal Protection Equipment for Laboratory personnel during sample collection
18. List complications of an Arterial Puncture
19. Neonatal hyperbilirubinemia
20. List the investigations to diagnose Neuroblastoma
21. Name 6 sources of Aluminum poisoning
22. Lactose intolerance

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Paper – II

Metabolism and Metabolic Disorder

Q.P. Code: M4442

Your answers should be specific to the questions asked.

Draw neat labelled diagrams wherever necessary.

Long Essay

- 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? 2x10=20
(1+1+2+1+1+4)
- 2 Mention the daily requirement, sources, factors affecting the absorption and functions of calcium. How is Calcium homeostasis maintained? (1+1+2+2+4)

Short Essay

- 3 Write any four functions of copper and disorders of copper metabolism 10X5=50
(2+3)
- 4 What are the biochemical changes during starvation? (1+4)
- 5 Define Basal Metabolic Rate (BMR). Describe the factors affecting the BMR. (3+2)
- 6 Explain its biochemical functions and deficiency manifestations of thiamine. (3+2)
- 7 Describe the ATP synthase complex. Add a note on inhibitors of ATP synthase (1+2+2)
- 8 Name thyroid hormones. How they are formed? Mention two techniques available for estimating thyroid hormones (2+3)
- 9 Give two examples of Radioisotopes and its applications in medicine (1+2+2)
- 10 Explain the synthesis of Adrenocorticosteroids. (1+2+2)
- 11 Define biological value of proteins. How is it calculated? Explain the mutual supplementation of Proteins. (1+2+2)
- 12 Enumerate the different components of Electron Transport Chain (ETC) with a neat labeled diagram 10X3=30
(1.5+1.5)

Short Answers

- 13 Haemosiderosis and Haemochromatosis (1+2)
- 14 What are provitamins? Give two examples (1+2)
- 15 Mention any three diseases related to the ill effects of obesity with the reason for the same (1+2)
- 16 Define Glycemic index. How is it calculated? (1+2)
- 17 Give 3 functions of Progesterone (1+2)
- 18 List 3 Hypothalamic hormones (1+2)
- 19 Write the dietary source and deficiency manifestations of zinc (1+2)
- 20 Define Protein Energy Malnutrition(PEM)? Classify PEM. (2+1)
- 21 3 Biochemical functions of Ascorbic acid. (2+1)
- 22 Uses of dietary fibers with 2 examples. (2+1)