

**SRI DEVARAJ URS ACADEMY OF HIGHER EDUCATION AND RESEARCH**  
(A Deemed to be University)

**Time: 180 Minutes**

**Max Marks: 80 Marks**

**MBBS Phase I Examination August 2024 Biochemistry Paper I**

**QP CODE: C1031**

*Your answer should be specific to the question asked*

*Draw neat labelled diagrams wherever necessary*

**Long Essay**

**10 × 2 = 20 Marks**

1. Define Homocystinuria. Describe the steps of biochemical basis of Homocystinuria. Mention the test to diagnose Homocystinuria. (1+7+2)
2. Write the steps of HMP shunt pathway. Explain the significance of this pathway? (7+3)

**Short Essay**

**5 × 12 = 60 Marks**

3. What are inulin, cellulose, dextrose, dextrin and dextran? Mention their biomedical Importance.
4. Schematically represent the Vitamin K cycle. Write the mechanism of action of Warfarin and mention its biomedical importance. (2+2+1)
5. What is oxidative stress? Write a note on diseases associated with oxidative stress. (1+4)
6. A 20-year old female was brought to the Emergency Department with nausea, vomiting and abdominal pain. She had been under a lot of stress with final examinations. In her hostel room, her friends noticed an empty bottle of Acetaminophen near the bed. Laboratory tests revealed hypokalemia and elevated liver enzymes. Her WBC count was normal. Her acetaminophen blood level was above 200 femtogram/mL. She was given a gastric lavage and prescribed oral N-acetylcysteine.
  - a) Name the conjugating agent used in detoxification of Acetaminophen. (1)
  - b) Explain the pathophysiology of liver toxicity in this patient. (4)
7. Mention the role of carbohydrates present in plasma membrane.
8. Mention the functions and clinical significance of peroxisomes. (2.5+2.5)
9. With a neat labelled diagram, explain the structure and its functions of Ig A
10. Define balanced diet and mention the basic principle in prescribing a balanced diet.
11. Classify proteins with suitable examples based on Nutritional value and functions.
12. What is Extracellular Matrix? Write the components and functions of Extracellular Matrix. (1+2+2)
13. What do you mean by Irreversible inhibition? Give two examples. Comment on the changes in the enzyme kinetics observed with irreversible inhibition. (1+2+2)
14. Describe the role of physician at various levels of Health care system

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**MBBS Phase I Examination August -2024**

**Biochemistry Paper -II**

**QP CODE: C1032**

*Your answer should be specific to the question asked*

*Draw neat labelled diagrams wherever necessary*

**Long Essay**

**10 × 2 = 20 Marks**

1. What is fatty liver? List the causes. Explain the role of lipotropic factors in prevention of fatty liver. (2+4+4)
2. Explain various mechanisms by which Acid- Base balance is maintained in the body.

**Short Essay**

**5 × 12 = 60 Marks**

3. Write the principle, procedure and inference for the following test: a) Benedict's test b) Rothera's test c) Heat coagulation test d) Hay's test e) Sulphosalicylic acid test (5X1)
4. List any five inhibitors of electron transport chain. Explain the mechanism of inhibition of any one and the effects on the human body.
5. Define Jaundice. Classify jaundice & mention the causes for each type of jaundice. (1+1+1+1)
6. Draw structure of Pyrimidine ring. Label sources of its various elements. Add a note on Orotic aciduria. (1+1+3)
7. A 50 year man presented with complaints of pain and swelling of the left great toe. On examination swelling was observed in the left first metatarsophalangeal joint and in other small joints. Personal history states that he is a non-vegetarian and consumes alcohol regularly. Investigation revealed serum uric acid level of 12 mg/dl.
  - a. What is the probable diagnosis?
  - b. Name the likely enzyme defect.
  - c. What is the normal reference range of serum uric acid?
  - d. Describe the biochemical basis of the symptoms noticed in this condition. (1+1+1+2)
8. Define Replication, Transcription and Translation? Add a note on post translational modifications. (1+1+1+2)
9. Enumerate the components of rRNA with a neat labelled diagram and write its importance translation.
10. Arachidonic acid is not a true essential fatty acid. Justify. Give the basis of essentiality and the functions of EFA (1+1+3)
11. Describe the organization of DNA in chromosomes.
12. Name any five electrolytes and compare the composition of them in the extracellular and intracellular fluids.
13. Write the biological reference range of Serum Magnesium.? List any four enzymes that require magnesium for activation. (1+4)
14. What is the role of PTH in calcium homeostasis?