SRI DEVARAJ URS ACADEMY OF HIGHER EDUCATION & RESEARCH

(A DEEMED TO BE UNIVERSITY)

MBBS Phase I Examination - January 2023

Time: 150 Minutes **Max Marks: 80 Marks**

Biochemistry Paper I QP Code C1031

(Your answer should be specific to the question asked
Draw neat labeled diagrams wherever necessary)

Long Essay 10 × 2 = 20 Marks

1. Name the compounds derived from Tryptophan. Explain how these compounds are synthesized from it. Add a note on inborn errors of metabolism associated with this. (2+5+3)
2. Write the steps of HMP shunt pathway. Explain the significance of this pathway? (7+3)

Short Essay 5 × 12 = 60 Marks

3. Define & classify glycoproteins. Give two examples with their biological functions. (1+2+2)
4. A 43 years old male was admitted to the hospital with complaints of numbness, tingling in the calves and feet and weight loss. On examination the patient was pale, confused and depressed.

   Lab investigations showed decreased serum levels of vitamin B_{12}.

   a) Explain the absorption of Vitamin B_{12}.

   b) Write any two biochemical reactions catalyzed by vitamin B_{12}.

   c)Write the RDA ofVitamin B_{12}. (2+2+1)
5. Describe the cellular effects of reactive oxygen species.
6. What is conjugation? Give four examples of conjugation reactions. (1+4)
7. Explain the transport mechanisms across cell membrane with examples
8. With a neat labelled diagram of IgM, explain its structure and functions.
9. Explain the biochemical changes during starvation.
10. Give FIVE examples for biologically important Peptides with their biomedical importance.
11. Define Extracellular Matrix and write components and functions of Extracellular Matrix. (1+2+2)
12. Define enzyme kinetics. List the enzymes in the diagnosis of myocardial infarction and their biomedical importance.
13. Explain in brief the various mechanisms of regulations of metabolic pathways
14. XYZ, a 25 year male patient had sustained massive head trauma and neurological injury in a motorcycle accident. After 5 weeks in the Critical Care Unit he does not show any improvement and continued to require ventilator support. His parents are assertive and religious. After consulting with their priest and the treating doctors, including palliative care specialists and a hospital ethicist, they decide to withdraw ventilator support and tube feedings and “to allow whatever happen to happen”. The parents say they are “placing XYZ in God’s hands now.” A decision was made to withdraw life support that very evening since the priest is there with them and family members have gathered.
   a). Define autonomy.

   b) Which ethical model is most appropriate and why?

   c) List the four pillars of medical ethics. (1+2+2)

SRI DEVARAJ URS ACADEMY OF HIGHER EDUCATION & RESEARCH

(A DEEMED TO BE UNIVERSITY)

MBBS Phase I Examination - January 2023

Time: 150 Minutes **Max Marks: 80 Marks**

Biochemistry Paper II QP Code C1032

(Your answer should be specific to the question asked
Draw neat labeled diagrams wherever necessary)

Long Essay 10 × 2 = 20 Marks

1. Define recombinant DNA technology. Write briefly the steps involved and add a note on application of recombinant DNA technology. (1+7+2)
2. Define pH. What is normal blood pH? List the various mechanisms in our body to regulate blood pH. Explain the renal mechanism by which blood pH is maintained in the body. (1+1+3+5)

Short Essay 5 × 12 = 60 Marks

3. Classify renal function test. Add a note on glycosuria and mention two conditions causing Glycosuria. (3+1+1)
4. Describe the Malate Aspartate shuttle and its importance.
5. Define and classify porphyrias. Mention their enzyme defect and clinical features. (2+3)
6. Explain the salvage pathway of purine synthesis. Write its biological significance. (3+2)
7. Write the biological reference interval of serum uric acid. Mention two conditions with increased blood uric acid levels. Add a note onthe role of uric acid as an antioxidant. (1+1+3)
8. Describe the modifiable and non-modifiable risk factors for atherosclerosis. (2.5 + 2.5)
9. Justify the role of ketone bodies as an alternate source of energy.
10. What are Amphipathic lipids? Give examples & their biomedical importance. (1+4)
11. What are synthetic nucleotide analogs? Explain their mechanism of action. Give **TWO** examples with their clinical application (1+ 2+2)
12. Write the biological reference interval of plasma osmolality. List any two conditions where plasma osmolality is increased. Mention the factors determining plasma osmolality. (1+2+2)
13. List **FIVE** Tumour markers and mention their diagnostic application in medicine.
14. Write the biochemical functions of zinc and calcium. (2.5 + 2.5)