SRI DEVARAJ URS ACADEMY OF HIGHER EDUCATION & RESEARCH
(A DEEMED TO BE UNIVERSITY)
MBBS Phase I Examination - April 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 ***2X10=20***

1. Explain the steps of metabolism of Tyrosine. Add a note on inborn errors of metabolism of tyrosine. (6+4)
2. Write the biological reference range for fasting and Post Prandial blood glucose. Explain the hormonal regulation of blood sugar. (2+8)

Short Essay ***12X5 = 60***

3. A 25 years old working bachelor had been eating only bread, cheese, boiled eggs, milk and canned foods which lack fresh vegetables and fruits for a few months. He then observed small red spots (petechiae) on his legs and swollen and painful gums. He consulted Doctor with complaints of swollen joints which are tender to touch and blood in the stools. On investigations, he also found to be anaemic. (Hb-8gms/dL)
   a) What is your probable diagnosis?
   b) Which vitamin deficiency causes this?
   c) What are the biochemical functions of this vitamin?
4. What is Nitrogen balance? Mention two conditions each with positive nitrogen balance and negative nitrogen balance
5. XYZ a 25 year male sustained massive head and neurological injury in a motorcycle accident. After five weeks in the critical care, he does not show any improvement and continued with ventilator support. His parents are assertive and religious. After discussing with their priest and their sons doctor including palliative care specialist and a hospital atheist, they decided to withdraw ventilator support and tube feedings and " to allow what ever happens to happen". The parents informed that they are placing XYZ in gods hands. A decision is made to withdraw life support that very evening since the priest is there with him and family members gathered.
   (a) Define autonomy
   (b) Which ethical model is most appropriate and why
   (c) List the four pillars of medical ethics (1+2+2)
6. Mention the functions and clinical significance of peroxisomes. (2.5+2.5)
7. With a neat labelled diagram, explain the structure and functions of IgG.
8. What are Glycosides? How are they further grouped? Give two examples for each class and indicate their significance (1+2+2)
9. Describe the role of following in detoxification process: a) glucuronic acid b) glycine c) PAPS d) acetate e) glutamine
10. What are subcellular marker enzymes? Enumerate any four marker enzymes for subcellular organelles. (1+4)
11. Define balanced diet and mention the basic principle in prescribing a balanced diet.
12. What are disaccharides? Give suitable examples with composition and biomedical importance
13. Describe the structure of collagen. Write the any 3 functions of collagen. (2+3)
14. Describe the clinical significance of isoenzyme determination in myocardial infarction.

SRI DEVARAJ URS ACADEMY OF HIGHER EDUCATION & RESEARCH

(A DEEMED TO BE UNIVERSITY)

MBBS Phase I Examination – April 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 ***2X10=20***

1. Define transcription. Describe in detail the steps involved in transcription. Add a note on inhibitors of transcription. (1+7+2)
2. A 45 year old male was admitted with a history of chronic obstructive airways disease for many years. On examination, he was found cyanosed and breathless. Blood sample was analyzed with the following results:
   Blood pH=6.9 (7.35-7.45) pCO_2=72 mmHg (35-45mmHg) $[HCO_3]$ =18mmol/L (22-26mmol/L)
   a) Identify the acid-base disorder.
   b) Name any four other conditions causing this acid base disorder.
   c) What is anion gap?
   d) Mention the two conditions of high anion gap.
   e) Explain the role of respiratory system in the regulation of acid base disorder.
   (1+2+1+1+5)

Short Essay ***12X5=60***

3. Describe the adrenal cortex function test and differentiate cushing syndrome from cushing disease (4+1)
4. Explain any four functions of phospholipids. What is APL antibody syndrome (4+1)
5. Write the reference range for plasma osmolality. List any two conditions where plasma osmolality is increased. Mention the factors determining plasma osmolality. (1+2+2)
6. What are tumor markers? List any 4 Tumor markers and write their diagnostic importance. (1+4)
7. Explain the salvage pathway of purine synthesis. Write its biological significance. (3+2)
8. Mention the various types of fatty acid oxidation. Add a note on the metabolic diseases of impaired oxidation of fatty acids. (1+4)
9. Write the biological reference interval for serum Total Cholesterol. Write two methods of estimating serum total cholesterol. Mention the derivatives of cholesterol and write their biomedical importance
10. What are the different types of RNAs? Describe the structure and function of tRNA. (1+4)
11. Write the biological reference range of potassium? Discuss the mechanism for the regulation of serum potassium. (1+4)
12. Write the steps of inosine monophosphate synthesis. How are ATP and GTP formed from inosine monophosphate? (3+2)
13. Describe the salient features & components of Fatty acid synthase complex (2+3)
14. Name nucleosides and nucleotides of adenine and cytosine. Write their importance. (2.5+2.5)