

SS/MBBS-I/BIO-CHM-I/11-23**First Professional MBBS Examination****2023****(November)****BIOCHEMISTRY****Paper-I****Full Marks: 100****Time: 3 hours****The figures in the margin indicate****full marks for the questions****Write the answers to the two Halves in separate books****Answer all questions**

1. What is normal fasting-plasma glucose level? How is it regulated? What is impaired glucose tolerance? [2 + 8 + 5 = 15]

2. Name the dietary lipids. Explain the role of bile salts in the digestion and absorption of fats. Mention the changes observed in obstructive jaundice. [2 + 8 + 5 = 15]

3. A 42-year-old male presented with severe pain, redness and swelling of the big toe in the night after a bout of alcohol consumption. He felt severe pain in his big toe when he woke up. No history of trauma or pain in other toes was there. Serum-uric acid was [9.7 mg/dL]

(a) What is your likely diagnosis?

(b) What is the biochemical basis of the condition?

(c) What is the treatment of the given condition and mechanism of action of the drug prescribe? 2+4+4=10

4. Choose the correct option :

1x10=10

(i) HbA differs from HbF in that

- (a) HbA has only alpha chains
- (b) HbF cannot bind to 2, 3-BPG
- (c) HbF can bind only 2 molecules of oxygen
- (d) HbA is alkali resistant.

(ii) Seliwanoff's test is done for

- (a) glucose
- (b) fructose
- (c) galactose
- (d) lactose

(iii) ATP synthase is a marker enzyme present in

- (a) cytoplasm
- (b) mitochondria
- (c) Golgi complex
- (d) lysosome

(iv) Denatured proteins

- (a) are soluble
- (b) are difficult to digest
- (c) are biologically inactive
- (d) Peptide bonds are broken

(v) Which of the following cellular organelles can cause autodigestion?

- (a) Golgi bodies
- (b) Lysosomes
- (c) Microsomes
- (d) Peroxisomes

(vi) All are examples of phospholipids, **except**

- (a) lecithin
- (b) ceramide
- (c) sphingomyelin
- (d) triacylglycerol.

(vii) The semi-essential amino acid is

- (a) alanine
- (b) arginine
- (c) cysteine
- (d) glycine

(viii) Different polypeptide chains are held together by

- (a) peptide bond
- (b) disulfide bond
- (c) glycoside bond
- (d) ester bond

(ix) Fluidity of membrane depends on

- (a) nature of fatty acids

- (b) concentration of proteins
- (c) membrane pumps
- (d) glycosylation of proteins

(x) Normal plasma cholesterol levels

- (a) 40-60 mg/100 ml
- (b) 70-100 mg/100 ml
- (c) 120-150 mg/100 ml
- (d) 150-200 mg/100 ml

5. Write short notes on the following : 5x7=35

- (a) High anion gap acidosis
- (b) Sources and fate of acetyl-CoA
- (c) Essential fatty acids
- (d) Biological action of glutathione
- (e) Renal buffer systems
- (f) Glucose 6 phosphate dehydrogenase deficiency
- (g) Levels of protein organization

6. Justify the following statements : 2x5=10

- (a) Conversion of pyruvate to lactate is an example of fermentation.
- (b) Preduodenal lipases are important for newborn infants.
- (c) There is cataract in galactosemia.
- (d) There is increased bleeding tendency in vitamin C deficiency.
- (e) Key enzyme in cholesterol synthesis is used as a therapeutic target.

7. What is the doctor-patient relationship in medical ethics?

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