

JAN-2024

BLDE (DEEMED TO BE UNIVERSITY)
MBBS PHASE – I EXAMINATION

[Time: 3 Hours]

[Max. Marks: 80]

BIOCHEMISTRY – PAPER – I
QP CODE: 1015

Your answer should be specific to the questions asked.
Draw neat labeled diagrams wherever necessary.
Each answer should be written on new page only.
Write question number in left side of margin

Long Essay: (Answer to be started on fresh page only) **2 X 10 = 20**

1. An 18 year old boy came to casualty with severe pain in the left loin. On examination the pain was suspected to be due to renal colic, he was placed under observation and treated accordingly. On inquiring he said that he had been consuming 4-5 vitamin D tablets per day (about 2000 IU per day) for past six months. He admitted that he took these pills after reading about the beneficial effects of vitamin D on skeletal growth in the newspapers and TV without consulting a doctor. For the past few days he has also been suffering from severe headache, weakness, increased thirst, polyuria and loss of weight.

Lab data: serum calcium is 15 mg/ dl (normal is 9-11 mg per dl) ; serum phosphate -7 mg/dl (normal is 3- 4.5 mg /dl)

- a) Give the probable diagnosis.(2 marks)
 - b) How do you interpret this case to make the probable diagnosis.(3 marks)
 - c) Give the biochemical reasoning for the signs and symptoms(3 marks)
 - d) Give the RDA of the vitamin D.(2 marks)
2. Give the reference range for blood pH? Discuss in detail about the acid base homeostasis under normal physiological conditions.

Short Essay: (Answer to be started on fresh page only) **6 X 5 = 30**

3. What are isoenzymes? Discuss the clinical significance of different isoenzyme variants of creatine kinase, lactate dehydrogenase and alkaline phosphatase.
4. Outline the sites of ATP generation in the electron transport chain. Give the chemiosmotic theory of ATP generation.
5. Give the sources, RDA and serum levels of calcium. Discuss the role of hormones in calcium homeostasis.
6. A 5 month old baby is referred to a nearby Teaching Hospital with complaints of recurrent vomiting and diarrhea. The baby has been exclusively breastfed. The baby's eye showed a developing cataract. The urine sample tested positive for benedicts, later the urine samples were tested specifically for glucose which was negative but it tested positive for mucic acid test which is specific for galactose.
- a) Give the probable diagnosis.
 - b) Give the other clinical features of the condition.
 - c) Name the deficient enzyme.
 - d) What is the cause of cataract in this condition?
7. Name the bile salts, give the biological functions of bile salts in lipid digestion. Add a note on enterohepatic circulation of bile salts.
8. Discuss the anabolic and catabolic role of Kreb's cycle. Write a note on its regulation.

Short Answer: (Leave three lines gap between the answers) **10 X 3 = 30**

9. Write a note on liposomes.
10. List the iron containing enzymes.
11. Lactose intolerance- Mention the defective enzyme and the biochemical basis for the C/F.
12. Na-K ATPase.
13. Prion diseases.
14. HbA1c- reference range and interpretation.
15. Specific dynamic action (SDA).
16. Selenium.
17. Define GTT. List the indications.
18. Give the dietary sources for Short chain fatty acids (SFA), Monounsaturated fatty acids (MUFA) and Polyunsaturated fatty Acids (PUFA).

