

JAN-2022

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

[Time :3 Hours]

[Max. Marks: 80+20(MCQ)]

BIOCHEMISTRY – PAPER – I

QP CODE: 1015 - CBME

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. A 48-year-old male presents to the clinic because of concerns about heart disease. He reports that his father died from a heart attack at age 46, and his older brother has also had a heart attack at age 46 but survived and is on medications for elevated cholesterol. The patient's cholesterol result was 350 mg/dL (normal 200). The physician prescribes medication, which he states is directed at the rate limiting step of cholesterol biosynthesis.
 - a. Describe cholesterol biosynthesis (5)
 - b. What is the rate-limiting step of cholesterol metabolism? (1)
 - c. What is the normal range of serum cholesterol? (1)
 - d. Explain the mechanism of action of medication prescribed in the above case? (3)
2. Write in brief about protein energy malnutrition.

Short Essay: (Answer to be started on fresh page only)

6 X 5 = 30

3. A 16-year-old boy is brought to the hospital with shortness of breath, nausea, vomiting and abdominal pain. He is also noted to have a fruity-smelling breath. He appears flushed in his face and is extremely thirsty. The following are the blood tests performed for patient's diagnosis; blood pH 7.2, serum ketone levels 6 mEq/L, and blood glucose level of 260 mg/dL.
 - a. What would be the biochemical defect in this patient? Justify your answer(2)
 - b. Give the biochemical explanation for increase ketone bodies in above condition . (3)
4. Active transport with a suitable example.
5. Describe the Galactose metabolism.
6. Give biochemical justifications
 - a. Vitamin C deficiency causes bleeding gums
 - b. People with diabetes need to get an Hb A1c test once in 3 months
 - c. Loss of taste occurs in zinc deficiency.
 - d. Buffer systems are called as first line of defense mechanism
 - e. Folic acid deficiency is associated with increased excretion of formiminoglutamate (FIGLU) in urine.
7. Enumerate functions of phosphorus. Add a note on fanconi's syndrome
8. Respiratory regulation of pH of blood.

Short Answer: (Leave three lines gap between the answers)

10 X 3 = 30

9. Write functions and deficiency symptoms of Niacin
10. Consequences of Vitamin A deficiency
11. Write the sequence of electron transport chain with indicating ATP formation sites
12. Enumerate biochemical markers of MI
13. Biological functions of cholesterol
14. Lactose intolerance.
15. Discuss high-energy compounds with examples
16. Write functions and deficiency symptoms of Zinc
17. Proenzymes and its importance
18. A 35-year-old female has been counselled about weight management. Her present weight was 50kg and she reports that she learned from an internet search that her increased weight is hereditary. As a physician what is your communication with this patient for the next step.

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[Time :3 Hours]

[Max. Marks: 80+20(MCQ)]

BIOCHEMISTRY – PAPER – II
QP CODE: 1016 · CBME

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. A 27 year old man presented to his general practitioner with a one week history of fever and malaise. On examination he appeared slightly jaundiced and was febrile (38.5°C). He had no evidence of pharyngitis, or organomegaly. A full blood count was reported as hemoglobin 14.2, increased white cell count (10.4×10⁹/l). Routine chemistry had been done at the same time and showed urea, creatinine, and electrolytes within laboratory reference ranges, raised total bilirubin (4.2 mg/dl; 95% unconjugated bilirubin), and with normal serum aspartate and alanine transaminases and alkaline phosphatase
 - a. What is your diagnosis ? Justify it. (1+2=3)
 - b. Discuss the importance of routine tests such as urea, creatinine, and electrolytes , bilirubin and enzymes serum aspartate and alanine transaminases and alkaline phosphatase.(7)
2. Explain the process of transcription of a gene in E. coli with the help of neat diagrams. Add a note on the post-transcriptional modifications and inhibitors of transcription.(6+2+2=10)

Short Essay: (Answer to be started on fresh page only)

6 X 5 = 30

3. Write normal plasma ammonia level. How ammonia is transported from extrahepatic Tissue to liver ?
4. A 21-year-old healthy male patient with sudden onset abdominal pain, nausea and vomiting, hypertension, tachycardia, and peripheral neuropathy after consumption of first alcoholic beverage. Further testing revealed elevated levels of both serum and urine ALA and PBG.
 - a. What is your probable diagnosis and what is the biochemical defect ? (2)
 - b. Give biochemical reason for elevated levels of both serum and urine ALA and PBG. (3)
5. Name special products obtained from glycine and describe synthesis of any one of them.
6. Write a note on Thyroid function test
7. A 3-month-old boy presents with elevated levels of phenylalanine, in the blood , phenyl pyruvate, phenyl lactate and phenyl acetate are excreted in urine. His skin color was appeared to be pale
 - a. What is the biochemical defect in this case ? (1)
 - b. Enumerate the complete defective reaction (1)
 - c. Discuss the why there is a urinary excretion of phenyl pyruvate , phenyl lactate and phenyl acetate.(2)
 - d. Why the skin color is pale in this case ? (1)
8. What are various plasma proteins ?What are their functions (2+3=5)

Short Answer: (Leave three lines gap between the answers)

10 X 3 = 30

9. What is Chargaff's rule and why is it important?
10. Write enzymatic defects in
 - a. Homocystinurias ; b Hartnup's Disease ; c. Albinism
11. Name some free radicals and explain how are they generated.
12. Write briefly about Bence-Jones protein
13. Write a short note on biochemical markers of MI
14. Describe trans methylation reactions with examples
15. Name any three disorders of urea cycle with mentioning their defective enzyme.
16. Write about salvage pathways of purine nucleotides.
17. Write a note on restriction endonucleases
18. Write about okazaki fragments.