QP CODE : 1024

Rajiv Gandhi University of Health Sciences, Karnataka

MBBS Phase — I (CBME) Degree Examination - 05-Mar-2022

Time: Three Hours **Max. Marks: 100 Marks**

BIOCHEMISTRY — PAPER I (RS-4)

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(QP contains three pages)

Your answers should be specific to the questions asked
Draw neat labeled diagrams wherever necessary

LONG ESSAYS **2 x 10 = 20 Marks**

1. A 8 year old boy was brought to orthopaedic OPD with a complaint of abnormal gait for the past 3 months. Clinical examination showed tenderness over Tibia.
Laboratory Investigation data revealed

Investigation	Patient report	Normal range
Serum Calcium	8.2 mg/d1	8.6-10.5 mg/di .
Serum Phosphate	2.3 mg/dl	2.3-4.5 mg/di
Serum Vitamin D	3 n. ml	8-55 n• ml

a. Name the vitamin D deficiency disorder in the above case
b. What is the RDA of vitamin D?
c Explain the formation of calcitriol
d. Describe the role of calcitriol in calcium homeostasis

2. Explain glycogenolysis. Write the difference between Liver and Muscle glycogenolysis. Mention the role of insulin and glucagon in glycogenolysis.

SHORT ESSAYS **8 x 5 = 40 Marks**

3. A pregnant lady who visited primary health care centre for antenatal check-up with complaints of tiredness and easy fatigability was found to be anemic. Peripheral smear showed microcytic hypochromic anemia.
   a. Name the mineral associated with the above disorder
   b. Write the dietary sources and RDA of the above mineral
   c. Write the biochemical functions of above mineral.

4. A 60 year old obese man, who underwent master health check-up was found to have mild hepatomegaly with fatty liver changes.
   a. What is fatty liver?
   b. Enumerate the causes of fatty liver
   c. Explain the role of lipotropic factors in preventing fatty liver,

5 Mention blood buffers. Explain the role of Lungs in acid base balance.

6. List five functions of phosphorous.

7. Describe steps in Ketogenesis, Mention two conditions associated with Ketonuria.

8 What is chemiosmotic hypothesis? Explain how proton gradient is utilized for ATP synthesis.

9, Describe competitive inhibition of enzymes with two examples.

10. Define Basal Metabolic Rate (BMR). Mention four factors affecting BMR.

SHORT ANSWERS **10 x 3 = 30 Marks**

11. Mention three functions of cholesterol.
12, What is HbA1C (Glycated Hemoglobin)? Mention its significance.
13, What are therapeutic enzymes? Give two examples with their therapeutic application.
14. What is facilitated diffusion? Give one example.
15, What Is the role of Anti Diuretic Hormone (ADH) in water balance? Name the disorder associated with its deficiency.
16, What is Alkali reserve? List two causes of metabolic acidosis.
17. What is Marasmus? List two features of Marasmus.
18. Define Km. What is the significance of Km?
19. Name three mucopolysaccharides and write their functions.
20. Troponins are more specific cardiac marker compared to creatine kinase — Justify. Multiple

Multiple Choice Questions **10 x 1 = 10 Marks**

21 i) **Galactosyl transferase is marker for**
- A. Cell membrane
- B. Mitochondria
- C. Lysosomes
- D. Golgi complex

- **Osteogenesis imperfecta is due to defect in:**

21 ii)
- A. Actin
- B. Collagen
- C. Keratin
- D. Crystallin

21 iii) **Bile acid is derived from**
- A. Cholesterol
- B. Glycerol
- C. Fatty acids
- D. Billirubin

21 iv Inulin is a polymer of
- A. Glucose
- B. Fructose
- C. Mannose
- D. Galactose

21 v) Which of the following mineral is best known for antioxidant role?
- A. Calcium
- B. Iron
- C. Phosphorus
- D. Selenium

22 i) Positive nitrogen balance Is seen in
- A. Pregnancy

B. Malnutrition
C. Chronic Illness

22 ii) Enzymes synthesized In Inactive form Is called as
A. Coenzymes
B. Apoenzymes
C. Proenzymes
D. Lysozymes

- 22 Iii) Phospholipid deficiency In respiratory distress syndrome Is
  A. Sphingomyelin
  B. Phosphatidyl ethanolamine
  C. Plasmalogen
  D. Lecithin

- 22 iv) Administration of loop diuretics leads to
  A. Metabolic acidosis
  B.Metabolic alkalosis
  C. Respiratory acidosis
  D. Respiratory alkalosis

22 v) Hyponatremia Is seen in
A.Addison's disease
B. Cushing's disease
C. Primary hyperaldosteronism
D. Steroid therapy