QP CODE : 1025

Rajiv Gandhi University of Health Sciences, Karnataka

MBBS Phase — I (CBME) Degree Examination - 08-Mar-2022

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

BIOCHEMISTRY — PAPER II (RS-4)
Q.P. CODE: 1025

(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 child of two years presented with convulsions. He was taking normal feeds, But his mother observed mousy odour of child's urine. Urine ferric chloride test was positive. Plasma phenylalanine was found to be elevated. He was diagnosed to have phenyl Ketonuria
   a) What is the biochemical defect in phenyl Ketonuria?
   b) Describe the catabolism of phenylalanine
   c) Give the biochemical reasons for mousy odour in this case

2. Describe protein biosynthesis in prokaryotes. Mention three inhibitors of protein biosynthesis

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

3. A 45 year old man presented with severe back pain and weakness. He had lost 7 kgs in last three months. He complained of loss of appetite and fatigue. X-ray showed punched out lesions. Urine is positive for Bence Jones protein
   a) Name the disorder in above case
   b) What are Bence Jones proteins?
   c) What is the electrophoretic pattern that is observed in this case?

4. A known case of diabetes and hypertension on irregular treatment presented with swelling of both lower limbs and puffiness of face. He was diagnosed with chronic kidney disease (CKD)
   a) Mention two biochemical parameters altered in CKD.
   b) Explain the test to assess glomerular function of Kidney.

5 What is Porphyria? Write the types of porphyria. Mention enzyme defect and clinical features of acute intermittent porphyria

6. How are free radicals generated? Describe the free radical scavenging systems

7. List the hormones which function with cAMP as second messenger. Describe the mechanism of action of steroid hormones

8. Enumerate the reactions of purine salvage pathway. Name the disorders that is associated with this pathway and write its clinical features

9 What are restriction endonucleases? Give two examples. Explain their role in Recombinant DNA technology

10. What Is polymerase chain reaction (PCR)? Explain the steps in PCR. Write two applications of PCR

SHORT ANSWERS

11. List out the assays done for evaluation of thyroid function. Enumerate the laboratory findings in hyperthyroidism
12. What is detoxification? Give two examples of detoxification by oxidative reaction
13. What are reference intervals? List out two pre analytical variables
14. What is Southern Blotting Technique? Mention its applications
15. Name three nucleotides and write their biological importance
16. What is innate and adaptive Immune response?
17. Give three examples of tumour markers and write their clinical Importance
18. Write the serum and urinary biochemical findings in hemolytic Jaundice
19. What are oncogenes? What are the factors that activate oncogenes?
20. What are essential amino acids? Give examples

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

21 i) Heme is converted to bilirubin in
- A. Mitochondria
- B. Microsomes
- C. Golgi apparatus
- D. Plasma membrane

21 ii) Immunogobulin which crosses placenta is
- A. IgG
- B. IgA
- C. IgM
- D. IgD

21 iii) The amino acid which <u>do not</u> allow formation of alpha helix is
- A. Glutamate
- B. Proline
- C. Tyrosine
- D. Histidine

21 iv) Histones are rich in
- A. Glutamic acid and aspartic acid
- B. Glycine and serine
- C. Methionine and cysteine
- D. Arginine and Histidine

21v) Which of the following is a termination codon?
- A. AAG
- B. CAG
- C. CAA
- D. UAG

22 I) In which of the following phase of cell cycle DNA replication takes place
- A. G_1
- B. G2
- C. S

22 ii) Which of the following antioxidant enzyme Is selenium dependent?

A. Glutathione peroxidase
B. Glutathione reductase
C. NADPH oxidase
D. Catalase

22 iii) Which of the following compound used in the treatment of gout *Is* a competitive inhibitor of xanthine oxidase?

A. Probenicid
B. Allopurinol
C. Colchicine
D. Acetaminophen

22 iv) Normal serum level of albumin is

A. 1.5 to 2.5 gm/di
B. 3.5 to 5 gm /di
C. 6 to 7.5 gm/dl
D. 9 to I.1 g midi

22 v) End product of catabolism of protein is?

A. Urea
B. Uric acid
C. Creatinine
D. Orotic acid