RUHS

First Year MBBS Examination

I MBBS BIOCHEMISTRY PAPERI

Time: 3 hours

Max Marks: 100

Date: 02-07-2021

Instructions: INSTRUCTIONS: Attempt all questions in both sections: (Use separate answer book for each section)

Section 1

1. Fill in the blanks (6)

a. Von Girke's disease is due to the deficiency of the enzyme _____
b. Functionally active form of Vitamin D is _____
c. The constituent unit of insulin is _____
d. Acrodermatitis enteropathica is due to defective absorption of _____
e. The major catabolic product of the amino acid _____
f. The first codon to be translated on mRNA is _____

2. Choose the correct option in the following choice question: (4)

a. Iodine is required for the synthesis of:

- a) Insulin
- b) Thyroxine
- c) Calcitonin
- d) Vitamin B12

b. Which of the following enzyme is dependent on thiamine pyrophosphate (TPP) for its activity
   - a) Transaldolase
   - b) Transketolase
   - c) Glucose-6-phosphatase
   - d) Hexokinase

c. Synthesis of heme does not occur in:
   - a) Liver
   - b) Osteocytes
   - c) RBC
   - d) Erythroid cells of bone marrow

d. Main energy source of brain during prolonged starvation is:
   - a) Ketone body
   - b) Glucose
   - c) Fatty acid
   - d) Fructose

3. A 4 month old infant was brought to the hospital for consultation. She had lack of pigmentation from skin, hair and iris of the eye. Photophobia was also present. a. (15)

a. What is the likely diagnosis?
b. Name the deficient pigment and the amino acid from which it is synthesized
c. What is the pattern of inheritance?
d. Name the enzyme responsible for the defect and write the reaction catalyzed by the enzyme

e. Explain treatment/management of the disease.

4. Write short notes on (any five) (10)

a. Importance of dietary fibres.
b. Detoxification by conjugation
c. Prions
d. Differential diagnosis of jaundice
e. Technique of polymerase chain reaction (PCR)

5. Explain briefly (15)

a. Inhibitors of translations
b. Point mutation
c. DNA repair mechanism
d. Disorder of thyroid function

Section 2

6. Explain process of transcription in prokaryotes. Add a note on post transcriptional modification and inhibitors of transcription. (20)

7. Explain why (10)

a. Vitamin E act as an antioxidant
b. Telomerase have been implicated in aging process and cancers.
c. Oedema is major manifestation in kwashiorkor.
d. Methotrexate is used an anti cancer agent
e. Genetic code is specific (A. 547)
f. Serum creatinine is more sensitive para meter than urea for assessing renal function.

8. Explain briefly: (20)

a. Operon concept of gene regulation
b. Salient features of genetic code
c. Application of recombinant DNA technology
d. Antioxidant enzymes

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