

Date: 29-11-2023

1123E357

First Year MBBS Examination

I MBBS Biochemistry Paper 2

Time: 3 hours

Max Marks: 100

Instructions:

1. Answer to the points.
2. Figure to the right indicates marks.
3. Use separate answer books for each section.
4. Draw diagrams wherever necessary.
5. Write legibly.

Section 1

1. Answer any one (10)

- a) Give a detailed account of prokaryotic transcription. How the newly formed RNA is processed. Name the inhibitors of transcription.
- b) Briefly outline the salvage pathway of

purine synthesis and its importance.

Explain the manifestations and biochemical basis of Lesch Nyhan syndrome

2. Answer any two (case based scenario/applied short notes) 12 (0)

a) A 28 year old female presented with history of fatigue, anorexia, constipation, poor memory, irritability, sleep disturbances, bilateral, symmetrical lower extremity paresthesia with burning pain and muscle cramps. On examination she has decreased vibratory position sense, absent ankle & knee jerk and muscle atrophy. her diet consist of polished rice without pulses, oil seed etc. The level of enzyme transketolase in RBC were low (1+1+1+3=6). a) What is your diagnosis? Deficiency of which nutrient causes this disorder? b) Explain the role of patient diet in this disorder c) Enumerate the coenzyme form of this nutrient d) What is the biochemical basis of clinical features of this patient.

b) A 45 year old male presented with complaints of pain in back & knee. His ear pinnae and sclera showed black pigmentation. Blackish pigmentation was also seen on the skin of both the palms. Urine turns black after few hours of exposure to atmospheric oxygen. X ray spine showed narrowing of intervertebral disc and lumbar lordosis. (1+1+2+2=6). a) What is your diagnosis b) Name the enzyme deficiency c) Explain the biochemical basis of clinical feature in this case. d) What are the specialized products of tyrosine?

c) A 45 year old non vegetarian, chronic alcoholic patient came to orthopedic OPD with complaints of acute pain in great toe. On examination there were signs of inflammation. Laboratory investigation reported serum uric acid level of 11 mg/dl. (1+2+1+2=6). a) What is probable diagnosis b) Enumerate the primary and secondary causes of condition c) What is the relationship between alcohol and

symptoms in this case? d) What are the treatment modalities in this case?

3. Write short notes (answer any three) (18)

- a) Differentiate kwashiorkor and marasmus
- b) Restriction fragment length polymorphism
- c) Antioxidant defense system
- d) Metabolic adaptations in the starvation

4. Answer in 2-3 lines (give biochemical justification) five out of six (10)

- a) Mention the enzymes used in the recombinant DNA technology
- b) Enumerate various free radicals.
- c) What is the mechanism of action of Zidovudine
- d) Enumerate the types and functions of RNA.
- e) Give the biochemical defect in odotic aciduria
- f) Define basa; metabo;oc rate.

Section 2

5. Answer any one (10)

- a) What is transamination and deamination? How ammonia transported and metabolized? Give details of the urea cycle. (2+3+5=10)
- b) What are the biological active forms of the folc acid? Hpw it is involved in the one carbon metabolisom? Explain the actions & clinical importance of the folate antagonists

6. Answer any two (case based scenario/applied short notes) (12)

- a) Calcium homeostasis
- b) Types of mutations and their effects with examples
- c) Structure of collagen and their disorder

7. Write short notes (answer any three) (18)

- a) Intestinal absorption of iron and various factors involved in its regulation
- b) Cushing syndrome
- c) cheperones and disorders associated with them.
- d) Structural organisation of the proteins

8. Answer in 2-3 lines (give biochemical justification) five out of six (10)

- a) Enumerate specialized products of glycine.
- b) Give examples of second messengers
- c) Enumerate the features of pellagra
- d) What is flurosis?
- e) Define zwitter iron
- f) What are acute phase proteins?

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