QP. CODE: MB2019102

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MBBS FIRST YEAR EXAMINATIONS: AUGUST, 2024

BIOCHEMISTRY PAPER-II

Time: 3 Hours **Max Marks: 100**

Note: Answer all questions.

Give Diagrammatic representation whenever necessary

Multiple Choice Questions: **10x1= 10**

1. An amino acid not found in proteins is

a) Homocysteine b) Proline

c) Lysine d) Histidine

2. All manifestations are seen in Lesch Nyhan syndrome except

a) Self mutilation b) Immunodeficiency

c) Hyperuricemia d) X-linked inheritance

3. Which enzyme is used for preparing recombinant DNA molecule

a) DNA Polymerase b) RNA Polymerase

c) Restriction endonuclease d) Topoisomerase

4. Congenital erythropoietic porphyria has all the features except

a) Sensitivity to sunlight b) Reddish discoloration of urine

c) Erythrocyte porphyrin level elevated d) Red fluorescence of teeth

5. Activation of protooncogenes to oncogenes involves

a) Promoter insertion mechanism b) Chromosomal translocation

c) Point mutation d) All of the above

6. DOPA is an intermediate in the synthesis of

a) Thyroid hormones b) Catecholamines

c) Melatonin d) ACTH

7. The loss of DNA at the end chromosomes is prevented by the action of

a) DNA ligase b) Telomerase

c) DNA gyrase d) DNA polymerase

8. Bilirubin is the end product of

a) Cholesterol metabolism b) Protein

c) Haeme d) Lipid

9. Connective tissue protein defective in Marfan's syndrome is

a) Tubulin b) Connexin

c) Fibrillin d) Keratin

Essay/ Long Answer Questions: **2x15=30**

11. A 45-year-old male presented with severe pain, redness and swelling of the base of great toe in the night after a bout of alcohol consumption. There is no history of trauma. On examination there is no previous history of such pain in other joints in the both the limbs. He had mild fever. There is no severe tenderness there in the right big toe. The biochemical parameters were as follows:

Serum Uric Acid-10.1mg%, blood sugar- 212 mg%.

a) What is the likely diagnosis.

b) Write the metabolism of purine degradation.

c) What is the biochemical basis of the condition.

d) Describe on disorders of purine metabolism.

e) Give the normal values of the above lab tests (2+4+2+5+2)

12. Discuss the one-carbon metabolism under the following headings.

a) Write on the generation of one-carbon units.

b) Describe the utilization of one-carbon moieties.

c) Mention the roles of methionine, Vitamin B12 and Folic Acid in one-carbon metabolism.

d) What is the list of one-carbon fragments, which constitute one-carbon pool in the biological reactions. (4+4+4+3)

Short Answer Questions: 7x6=42

13. What are Mutations. Describe different types and consequences of mutations.

14. Describe the Structure of Collagen and functions. Explain the biochemical basis of Osteogenesis imperfecta.

15. Describe the polymerase chain reaction along with its applications.

16. Enumerate different renal function tests and add a note on clearance tests.

17. Describe Porphyria's and write on the characteristics, enzymatic defect on Hepatic Porphyria's.

18. How does the lifelong learning reflects the growth of a physician in India.

19. What are Buffers. What are the different buffer system present in Blood.

Very Short Answer Questions: 6x3=18

20. Mention types of immunity and functions of B-helper cells in the body.

21. "Okazaki" fragments.

22. Detoxification by Conjugation.

23. Write difference between DNA Polymerase and RNA polymerase.

24. Write about oncogenes list and their associated human cancers examples representing the molecular basis of cancer.

25. Mechanism of action of Group-I hormones.

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