QP. CODE: MB2019101

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MBBS FIRST YEAR EXAMINATIONS: FEBRUARY, 2023

BIOCHEMISTRY PAPER I

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

Note: Answer all questions.

Give Diagrammatic representation whenever necessary

Write an essay on the following: **2x15=30**

1. A 45-year-old man is brought to the hospital in a comatose state on examination. He was found to be dehydrated and toxic with a characteristic breathing pattern and a sweet smell on his breath. He is admitted to the ward and investigated the following are the results of the lab investigations.

RBS-380 mg%, Benedict's test with urine-positive brick red. Rothera's test with urine-positive. Plasma p^H-7.35, Serum HCO_3-15 meq/L

a) Write the probable diagnosis?

b) How do you interpret the above laboratory data?

c) Discuss the pathophysiology of this case.

d) What are the enzymes influenced by insulin? What are the derangements seen in diabetes mellitus?

(1+3+5+6)

2. a) Enumerate the major steps of synthesis of cholesterol.

b) Name the rate limiting step of cholesterol synthesis.

c) Explain how the cholesterol is transported from liver to peripheral tissues and back.

d) Describe the role of cholesterol in atherosclerosis. (7+1+2+5)

Write a short note on the following: **8x5=40**

3. Sickle cell disease.

4. Name the renal clearance tests. Give details of any one of them.

5. Phenylketonuria.

6. Write about the tumour markers. Add a note about telomeres.

7. Explain principle, procedure and applications of polymerase chain reaction (PCR)

8. Thyroid function tests.

9. Porphyrias.

10. What are restriction enzymes? Explain by giving examples. What are their uses?

Write briefly on the following: **10X3=30**

11. Alkaptonuria.

12. Polyamines.

13. Anti Diuretic hormone (ADH)

14. DNA mutations.

A. Mention the types of DNA mutations.

B. Justify the statement: "defects in DNA repair mechanisms leads to cancer"

15. Biologically active peptides.

16. Vandenberg Reaction.

17. Orotic Aciduria.

18. What is a Codon? Describe the salient features of genetic code.

19. Anion Gap.

20. Urinary Vanillyl Mandelic Acid (VMA) estimation is helpful for the diagnosis of Phaeocromocytoma - Justify.

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