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**First M.B.B.S. 2019 (New Course) Examination,
Summer (Phase - IV) 2020
BIOCHEMISTRY - I**

Total Duration : Section A + B = 3 Hours

Section B Marks : 80

SECTION - B

- Instructions :**
- 1) Use **blue/black** ball point pen only.
 - 2) Do not write anything on the **blank portion of the question paper**. If written anything, such type of act will be considered as an attempt to resort to unfair means.
 - 3) **All questions are compulsory.**
 - 4) The number to the **right** indicates **full marks**.
 - 5) Draw diagrams **wherever** necessary.
 - 6) Distribution of syllabus in Question Paper is only meant to cover entire syllabus within the stipulated frame. The Question paper pattern is a mere guideline. Questions can be asked from any paper's syllabus into any question paper. Students cannot claim that the Question is out of syllabus. As it is only for the placement sake, the distribution has been done.

2. Brief Answer Questions (Any Ten out of Eleven): [10 × 2 = 20]

- a) Name two diseases due to altered lysosomal functions.
- b) Give chemical composition of Hyaluronic acid & chondroitin sulfate.
- c) Define Liposomes and state its use.
- d) Give reason-Why excessive ingestion of alcohol results in hypoglycemia?
- e) Name 4 inhibitors of Complex II of ETC.
- f) Name two preventive antioxidants.

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- g) Enumerate any four factors affecting nitrogen balance.
- h) Enumerate four enzymes of diagnostic importance for Liver function.
- i) Give fasting & postprandial plasma glucose levels in impaired Glucose Tolerance.
- j) Enumerate any two oncosuppressor genes.
- k) Enumerate any four functions of Cholesterol.

3. Short Answer Questions (Any Eight out of Nine): [8 × 5 = 40]

- a) A baby boy showed the presence of congenital cataract and liver enlargement. Blood levels of galactose were found to be elevated. There was also presence of galactose in urine. [1+1+1+2]
 - i) Name the probable disorder.
 - ii) Mention the deficient enzyme.
 - iii) Why treatment is not required beyond 4 years of age.
 - iv) Explain the biochemical basis for development of cataract.
- b) Define Biotransformation. Briefly describe hydrolysis and reduction reactions with two examples of each. [1+2+2]
- c) Differentiate any five characteristics of normal and tumor cells.
- d) Describe phase one, two and three of lipid peroxidation with suitable reactions. [2+2+1]
- e) A eight year old female child presented to the OPD with angina. On clinical examination atherosclerotic changes were seen. On investigating her blood reports revealed the following; Blood Parameters Value Plasma glucose (Random) 94 mg% Serum Total cholesterol 432 mg% LDL cholesterol 388 mg% VLDL cholesterol 32 mg% HDL cholesterol 36 mg% Serum Triglyceride 104 mg%.

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- i) What is the probable diagnosis? [1]
- ii) Explain the three mechanisms for increased LDL levels? [3]
- iii) Name the drug of choice used for treating this disease? [1]
- f) Describe cells of the immune system.
- g) Inhibitors & uncouplers of electron transport chain.
- h) Define Isoenzymes. Discuss isoenzymes of two different enzymes. [1+2+2]
- i) Briefly discuss the importance of nonverbal communication in Doctor Patient relationship.

4. Long Answer Questions (Any Two out of Three) [2×10=20]

- a) Discuss following types of enzyme inhibitions with suitable examples. [4+4+1+1]
 - i) Competitive inhibition
 - ii) Non competitive inhibition
 - iii) Uncompetitive inhibition
 - iv) Suicide inhibition
- b) Explain the pathways of Glycogen synthesis and degradation. Give an account of its regulation. [4+4+2]
- c) Discuss prostaglandins under following headings. [2+4+4]
 - i) Chemical structure and classification
 - ii) Biosynthesis & regulation
 - iii) Clinical applications

