

(LF 148)

OCTOBER 2014

Sub. Code:2043

**M.D. DEGREE EXAMINATION  
BRANCH XIII - BIOCHEMISTRY**

**PAPER I – PHYSICAL AND ORGANIC ASPECTS OF BIOCHEMISTRY,  
INSTRUMENTATION, BIOCHEMICAL TECHNIQUES, BIOSTATISTICS**

*Q.P.Code: 202043*

**Time: Three Hours**

**Maximum: 100 marks**

**I. Essay Questions:**

**(2 x 10 = 20)**

1. Discuss in detail the various pre analytical variables that can affect the quality of a test result in a clinical chemistry laboratory.
2. Describe the principles of different immunoassay techniques used in a laboratory, the advantages and disadvantages of each one of them.

**II. Short Questions:**

**(8 x 5 = 40)**

1. High density lipoproteins
2. Gibbs - Donnan Equilibrium and its importance in a cell.
3. Types of laboratory water- the application of each one them & their characteristics.
4. Steps in & methods of elucidating the primary structure of a protein.
5. What is 'Delta Check' and its utility as part of quality assurance?
6. Blotting techniques.
7. Elements of laboratory accreditation.
8. Liposomes and their application in clinical medicine.

**III. Reasoning Out:**

**(4 x 5 = 20)**

1. It is better to express imprecision of an analytical method in terms of coefficient of variation rather than standard deviation. Justify with an example.
2. Why the human body is unable to synthesise  $\alpha$ - linolenic acid?
3. Why glucose is stored as glycogen and not as glucose itself?
4. Why is it better to measure serum sodium by Direct ISE methods in the presence of hyperproteinemia and hyperlipoproteinemia?

**IV. Very Short Answers:**

**(10 x 2 = 20)**

1. Students' t-test.
2. Classification of amino acids based on their side chains.
3. What are Ramachandran's angles and their importance in protein structure?
4. Structure of cardiolipin and its role in a cell.
5. What is 'High Dose Hook effect' and how can it be overcome?
6. 'Molar absorptivity' of a substance and its significance.
7. Advantages of capillary electrophoresis over slab gel electrophoresis.
8. State any 2 functions of GAGs in a cell.
9. Explain Diastereoisomers with an example.
10. Ruhemann's purple.

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