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RBC-005

Ph. D. (BIOCHEMISTRY) (PHDBC)

Term-End Examination

June, 2022

**RBC-005 : BIOLOGICAL MACROMOLECULES
AND METABOLISM**

Time : 3 Hours

Maximum Marks : 100

Note : (i) *Question No. 1 is compulsory.*

(ii) *Attempt any **four** questions from
Q. Nos. 2 to 7.*

1. (a) Explain the following terms and give their importance : 5×3=15
- (i) Catabolism
 - (ii) Coricycle
 - (iii) Nucleoside
 - (iv) Cofactor
 - (v) Covalent modification

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- (b) Explain why sucrose is called an invert sugar. 5
2. (a) Write the structures and biological importance of any *two* disaccharides. 10
- (b) Classify fatty acids with suitable examples. 10
3. (a) Write notes on any *two* of the following : 5 each
- (i) Metabolism of xenobiotics
 - (ii) Role of phospholipids
 - (iii) ATP
- (b) Describe the secondary and tertiary levels of protein structure. 10
4. (a) Explain the theories of enzyme action. 10
- (b) Give the biological significance of the following : 5 each
- (i) Glycogen
 - (ii) Lipoproteins
5. (a) Describe the pentose-phosphale pathway. 10
- (b) Differentiate between the following : 5 each
- (i) Hypoglycemia and Hyperglycemia
 - (ii) Glycogenesis and Gluconeogenesis

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6. (a) Discuss the fatty acid synthesis. 10
(b) Explain the regulatory steps of glycolysis. 10
7. (a) Describe the urea cycle. 10
(b) Write the chemical structures of any *two* of the following : 5 each
(i) NAD
(ii) GTP
(iii) Amylopectin