Reg.No. \_\_\_\_\_\_\_\_\_\_\_\_



**UNIVERSITY**

(Karunya Institute of Technology & Sciences)

(Declared as Deemed-to-be University under Sec.3 of the UGC Act, 1956)

**End Semester Examination – Nov/Dec – 2016**

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|  |  | **Semester :** | **I (2016-17 odd)** |
| **Code :** | **14BT3001** | **Duration :** | **3hrs** |
| **Sub. Name :** | **APPLIED BIOCHEMISTRY** | **Max. marks :** | **100** |

**ANSWER ALL QUESTIONS (5 x 20 = 100 Marks)**

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| **Q. No.** | **Sub Div.** | **Questions** | **Course**  **Outcome** | Marks |
| 1. | a. | What are the different ways in which glycans can mediate or modulate biological functions? | CO 1 | 10 |
| b. | How are glycoproteins classified based on their linkages? Explain the most important functional features of a typical secreted mucin. | CO 1 | 10 |
| (OR) | | | | |
| 2. | a. | Differentiate glycoproteins and proteoglycans. Explain their distinctive functions with examples. | CO 1 | 10 |
| b. | Carbohydrates serve as informational molecules or the sugar code. Bring out the reasons to explain the above statement. | CO 1 | 10 |
| 3. | a. | Elaborate on the role of glycans in biotechnology and pharmaceutical industries. | CO 1 | 10 |
| b. | Conceptualize how blood group antigenic epitopes variants are formed with respect to glycan composition. | CO 1 | 10 |
| (OR) | | | | |
| 4. | a. | What are lectins? How do they mediate cell to cell recognition and adhesion? | CO 1 | 10 |
| b. | How do *Hemophilus influenza* and *Helicobacter pylori* engage the host cell surface to initiate infection? | CO 1 | 4 |
| c. | What are therapeutic glycans? | CO 1 | 6 |
| 5. | a. | The shape of hair is determined by the pattern of disulphide bonds in Keratin. How can curls be introduced? | CO 2 | 6 |
| b. | Explain how the structure of Myoglobin and Hemoglobin help in oxygen binding and diffusion. | CO 2 | 14 |
| (OR) | | | | |
| 6. | a. | What makes collagen a strong tensile protein? Add a note on structure functions relationship. | CO 2 | 10 |
| b. | Highlight the structural features of muscular proteins. | CO 2 | 10 |
| 7. | a. | The integrity of cell membrane is affected by membrane peroxidation. Explain the mechanism and what is the consequence of peroxidation? | CO 2 | 10 |
| b. | With specific examples, illustrate the mechanism of actions of hormones that bind intracellular receptors. | CO 2 | 10 |
| (OR) | | | | |
| 8. | a. | Define oxidative stress. Potentiate the role of mitochondria in oxidative stress. Add a note on biological consequences. | CO 2 | 12 |
| b. | Highlight the principle and applications of ELISA and Spectrometry in enzyme assays. | CO 2 | 8 |
|  | | **Compulsory:** |  |  |
| 9. | a. | Natural antioxidants exhibit defensive action against oxidative damage and improve health. Explain with suitable examples. | CO 2 | 20 |