

**B.Sc. (Sem.-5) Examination****301 Biochemistry****Metabolism****Time : 2-00 Hours]****August 2021****[Max. Marks : 50**

- Instruction :** (1) All questions in section-I carry equal marks.  
 (2) Attempt any three questions in section I  
 (3) Questions-IX in section II is compulsory.

**SECTION I**

- |         |  |   |
|---------|--|---|
| 1 ( a ) | Write pathway of glycolysis.                         | 7 |
| ( b )   | Explain fate of pyruvate.                            | 7 |
| 2 ( a ) | Explain regulation of glycogen metabolism.           | 7 |
| ( b )   | Write pathway of glycogenolysis.                     | 7 |
| 3 ( a ) | Give pathway of urea cycle.                          | 7 |
| ( b )   | Give significance of N-waste products.               | 7 |
| 4 ( a ) | Explain oxidative De-amination.                      | 7 |
| ( b )   | Discuss with example non-oxidative de-amination.     | 7 |
| 5 ( a ) | Write pathway of $\beta$ -oxidation.                 | 7 |
| ( b )   | Explain de-saturation and elongation of Fatty Acids. | 7 |
| 6 ( a ) | Explain pathway of Fatty acid synthesis.             | 7 |
| ( b )   | TG & PL synthesis - write brief note.                | 7 |
| 7 ( a ) | Write a note on PDH complex.                         | 7 |
| ( b )   | Explain $\text{NAD}^+$ using steps of TCA cycle.     | 7 |
| 8 ( a ) | Explain glycerol - phosphate shuttle.                | 7 |
| ( b )   | Write Malate - Aspartate Shuttle.                    | 7 |

**SECTION II**

- |        |  |   |
|--------|--|---|
| 9      | Answer in short (any eight) :                                | 8 |
| ( 1 )  | Full form of : ATP, NAD                                      |   |
| ( 2 )  | Who discover TCA cycle?                                      |   |
| ( 3 )  | Write ATP production in glycolysis (aerobic phase)           |   |
| ( 4 )  | Name enzymes of PDH complex.                                 |   |
| ( 5 )  | Name last enzyme of ETS.                                     |   |
| ( 6 )  | Give full form of : ETC, FAD                                 |   |
| ( 7 )  | Name Inborn error of carbohydrate metabolism.                |   |
| ( 8 )  | Name Inborn error of lipid metabolism.                       |   |
| ( 9 )  | Name Inborn error of protein metabolism.                     |   |
| ( 10 ) | Name first enzyme of TCA cycle.                              |   |
| ( 11 ) | Write structure of glyceraldehyde - 3 - phosphate.           |   |
| ( 12 ) | Give structure of Malate.                                    |   |
| ( 13 ) | Name enzyme of TCA cycle uses GDP.                           |   |
| ( 14 ) | Aerobic respiration of glucose produces total how many ATPs? |   |
| ( 15 ) | Name 2 inhibitors of ETS.                                    |   |
| ( 16 ) | How many ATP produced only in TCA cycle.                     |   |