



Department of Genetic Engineering and Biotechnology
Faculty of Health and Life Sciences
B. Sc. (Hons.) in Genetic Engineering and Biotechnology
Midterm Examination Spring 2026

Course Code: 0512-2107
Level and Term: L-2, T-1
Time: 1 Hour 30 Minutes

Section: 252 (A+B)

Course Title: Metabolism
Course Teacher Initials: DMI
Total Marks: 25

Answer the following questions:

- | | | Marks |
|---|---|-------|
| 1 | (a) Define the terms metabolism, catabolism, and anabolism. [CLO1, PLO1, C1] | 2.0 |
| | (b) Briefly discuss the metabolic and energy transfer pathways involved in metabolism. [CLO1, PLO1, C6] | 3.0 |
| 2 | Draw and explain the tricarboxylic acid cycle (TCA) pathway step by step mentioning the intermediates products, enzymes, and energy changes. [CLO2, PLO2, C5] | 5.0 |
| 3 | (a) Compare between aerobic and anerobic fate of pyruvate. CLO2, PLO2, C4] | 2.5 |
| | (b) Illustrate the diagram of glycolysis pathway showing all intermediates products, enzymes, and energy-yielding steps. [CLO2, PLO2, C2] | 2.5 |
| 4 | (a) What is meant by lipid metabolisms? Draw the pathway involved in the degradation of triglycerides. [CLO2, PLO2, C1] | 2.0 |
| | (b) Discuss the stepwise process involved in the β -oxidation of fatty acids, highlighting the intermediate products and key enzymes. [CLO2, PLO2, C6] | 3.0 |
| 5 | (a) What is protein metabolism? Briefly discuss the significance of protein metabolism. [CLO2, PLO2, C1] | 3.0 |
| | (b) Explain the process of amino acid decarboxylation involved in protein metabolism. [CLO2, PLO2, C2] | 2.0 |