



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

Course Code: 0512-2107
Level and Term: L-2, T-1
Time: 02 Hours

Section: 251 (A+B)

Course Title: Metabolism
Course Teacher Initials: DMI & DEH
Total Marks: 40

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|---|--|-------|
| 1 | (a) Briefly describe the significance of protein metabolism. [CLO2, PLO2, C6]
Discuss the outline of amino acid oxidative deamination process. | 5.0 |
| | (b) Explain the metabolism of amino acids with special reference to the urea cycle [CLO2, PLO2, C2] | 3.0 |
| 2 | (a) Discuss the fatty acid biosynthesis pathways with a diagram. [CLO2, PLO2, C6] | 4.0 |
| | (b) Explain the triglyceride biosynthesis pathways with diagram. Briefly describe the application of triglyceride biosynthesis pathway. [CLO2, PLO2, C2] | 4.0 |
| 3 | (a) What are the differences between glucogenic amino acids and ketogenic amino acids? Explain the key regulation mechanisms of amino acid metabolism [CLO2, PLO2, C1] | 5.0 |
| | (b) Explain the key process and mechanisms of amino acid biosynthesis [CLO2, PLO2, C2] | 3.0 |
| 4 | (a) Discuss the synthesis of purine and pyrimidine nucleotides with diagram. [CLO4, PLO2, C6] | 5.0 |
| | (b) Explain the main metabolic functions of nucleotides. [CLO4, PLO2, C2] | 3.0 |
| 5 | (a) What is meant by mineral metabolism? Explain the metabolism, absorption, transport, and biological roles of Ca. [CLO2, PLO2, C1] | 4.0 |
| | (b) Describe the metabolic reactions that are regulated by the minerals Mn and Mg. [CLO2, PLO2, C6] | 4.0 |