



Department of Genetic Engineering and Biotechnology
Faculty of Health and Life Sciences
B. Sc. (Hons.) in Genetic Engineering and Biotechnology
Midterm Examination Fall 2025

Course Code: 0512-1301
Level and Term: L-1, T-1
Time: 1 hour 30 minutes

Section: 251(A+B)

Course Title: Basic Biochemistry
Course Teacher Initials: MZA and DMI
Total Marks: 25

Splitting any answer is strictly prohibited

| | | Marks |
|---|---|--------------------|
| 1 | (a) Define and classify lipids with examples. | [CLO2, PLO2, C1] 3 |
| | (b) Enumerate the biological functions of lipids in living organisms. | [CLO1, PLO1, C2] 2 |
| 2 | (a) Draw ring structure of glucose and linear structure of fructose | [CLO3, PLO7, C3] 3 |
| | (b) Define reducing and non-reducing sugars, citing suitable examples. | [CLO3, PLO7, C2] 2 |
| 3 | (a) Present a schematic classification chart of carbohydrates with examples. | [CLO2, PLO2, C6] 3 |
| | (b) Discuss the biological importance and physiological functions of carbohydrates. | [CLO1, PLO1, C2] 2 |
| 4 | (a) Explain the concept of buffer and illustrate its mechanism of action in maintaining pH stability. | [CLO1, PLO1, C3] 3 |
| | (b) What is dissociation constant? Write the full Henderson-Hasselbalch equation for "Basic" buffer system. | [CLO3, PLO7, C3] 2 |
| 5 | (a) Discuss 3 chemical properties of water. | [CLO1, PLO1, C4] 3 |
| | (b) Calculate the pH values of 0.3 M and 0.8 M HCl solutions. | [CLO3, PLO7, C3] 2 |