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Daffodil International University

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: 0517- 2103 | **Section: 251 (A+B)** | **Course Title:** Cytology
Level and Term: L-2, T-1 | **Course Teacher Initials:** DSR
Time: 1 Hour 30 Minutes | **Total Marks:** 25

				Marks
1	(a)	Outline the historical development of cell theory, mentioning the key contributions of Robert Hooke, Matthias Schleiden, Theodor Schwann, and Rudolf Virchow.	[CLO1, PLO1, C1]	2.5
	(b)	Identify and list the cellular organelles common to all cells, including both prokaryotic and eukaryotic cells.	[CLO1, PLO1, C1]	2.5
2	(a)	Describe the structure and function of ribosomes.	[CLO1, PLO1, C1]	2.5
	(b)	Explain the structure and functions of the endoplasmic reticulum (ER) and support your answer with a properly labeled diagram.	[CLO3, PLO1, C2]	2.5
3	(a)	List five diseases caused by chromosomal abnormalities with causes.	[CLO3, PLO1, C1]	2.5
	(b)	The Golgi apparatus is often referred to as the "traffic police" of the cell. Analyze why the Golgi apparatus is given this title and explain how its structure supports its functional role in intracellular transport.	[CLO1, PLO1, C5]	2.5
4	(a)	A patient is diagnosed with a chromosomal abnormality involving either a deletion, duplication, or translocation. Evaluate which of these structural chromosomal mutations is most likely to produce severe phenotypic consequences and justify your answer with appropriate genetic reasoning.	[CLO2, PLO1, C6]	2.5
	(b)	Define karyogram and chromosome banding. Briefly state their importance in cytogenetics.	[CLO4, PLO1, C2]	2.5
5	(a)	Construct a label diagram of DNA and RNA molecules.	[CLO3, PLO1, C6]	2.5
	(b)	Clearly indicate the structural differences, and bonding patterns of nucleic acids.	[CLO1, PLO1, C4]	2.5