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Daffodil International University

Faculty of Science & Information Technology
Department of Computer Science and Engineering
Mid Semester Examination, Spring-2024
Course Code: PHY102 Course Title: Physics II
Level: 1 Term: 2

Exam Duration: 1.5 Hours (90 Min.) **Marks: 25**

Answer ALL Questions

[The figures in the right margin indicate the full marks and corresponding course outcomes. All portions of each question must be answered sequentially.]

1.	*a)*	Can you recall and provide a definition for Electric Flux?	1	CO1
	b)	Tell something about Resistivity.	1	
	c)	What do you mean by μ_o in the context of a magnetic substance.	1	
	d)	Define Ohm's Law and its components.	1	
	e)	State Faraday's Law.	1	
2.	*a)*	Show the capacitance of parallel plate capacitor.	3	CO2
	b)	Using Biot-Savart Law calculate the magnetic field at the center of the circular coil of 65 turns carrying current.	3	
	c)	State Gauss's Law and derive Coulomb's Law from it.	4	
3.	*a)*	A point charge of magnitude $+2.0\times10^{-7}$ C is placed in air. Compute the electric field intensity at a distance of 12 cm from the center of the charge.	3	CO3
	b)	The area of each plate of a parallel plate capacitor is 1.5×10^{6} mm^2 and distance between the plates is 2 cm. If the potential difference is 60V, then discover the charge in each plate. ($\epsilon_0 = 8.854\times10^{-12}$ Fm^{-1})	3	
	c)	The magnetic flux through a flat surface of area 5.0 cm^2 in a uniform magnetic field of 4.0 T is 1.0 mWb. What is the angle between the surface and the magnetic field?	4	