



# 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 $\mu_s$ 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 $+2.0 \times 10^{-7}$ 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 $1.5 \times 10^6$ mm <sup>2</sup> and distance between the plates is 2 cm. If the potential difference is 60V, then discover the charge in each plate. ( $\epsilon_0 = 8.854 \times 10^{-12}$ Fm <sup>-1</sup> )	3	
	c)	The magnetic flux through a flat surface of area 5.0 cm <sup>2</sup> 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	