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Daffodil International University

Faculty of Science & Information Technology
Department of Computer Science and Engineering
Final Examination, Spring-2024
Course Code: PHY101, Course Title: Physics I
Level: 1 Term: 1 Batch: 66

Time: 2 Hour **Marks: 40**

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 total internal reflection?	1	CO1
	b)	What do you mean by polarized light?	1	
	c)	Write down 4 types of thermodynamic process and define?	2	
	d)	Define entropy and it's significance.	2	
	e)	Which factors differ the phenomena of heat and temperature?	2	
	f)	State Zeroth law of thermodynamics.	2	
2.	a)	Explain the total work done of a Carnot's cycle of its four steps.	4	CO2
	b)	Explain the theory of interference of light from Young's double slit experiment.	4	
	c)	Show that the ratio of specific heat γ for monatomic, diatomic and tri-atomic gas molecules.	3	
	d)	Statement of refraction law and hence derive Snell's law from Fermat's principle.	4	
3.	a)	If the refractive index of paraffin is 3.51/3 and that of glass is 3/2. What will be the refractive index of glass with respect to paraffin?	4	CO3
	b)	In Young's double slit experiment an interference spectrum is formed in the screen at a distance of 1.55m from two slit having separation of 0.4mm. If the wavelength of used light is 600nm. Determine the fringe width.	4	
	c)	Let a gas enclosed in a cylinder with piston. By keeping the pressure fixed at 500 Pa, if 1500 J heat is supplied to the system it does 900 J work. Determine the change in internal energy of the system.	4	
	d)	Determine the temperature which has 30^0 differences in Celsius and Fahrenheit scale.	3	