TED (21) -1003
(Revision- 2021)

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DIPLOMA EXAMINATION IN ENGINEERING/TECHNOLOGY/MANAGEMENT/ COMMERCIAL PRACTICE, NOVEMBER - 2023

APPLIED PHYSICS - I

[Maximum Marks : 75] [Time : 3 hours]

PART–A

I. Answer **all** the following questions in one word or sentence. Each question carries 1 mark.

(9x1=9 marks)

		Module Outcome	Cognitive level
1	One micrometer = …….meter.	M 1.01	R
2	A person falls forward when a moving bus suddenly stops. This is due to ……	M 1.04	U
3	If a body completes one revolution around a circle, its angular displacement is……..radians.	M2.01	U
4	Moment of inertia of a hollow sphere of radius R and mass M about any diameter is …….	M2.02	R
5	Work done by gravity when a person walks horizontally with some load is …….	M3.01	U
6	The degree of hotness or coldness of a body is called…….	M3.04	R
7	The reciprocal of the bulk modulus is called ……..	M4.01	R
8	The forces of attraction between molecules of the same kind are called ……..	M4.02	R
9	If Reynold's number for a fluid flowing through a pipe, is less than 1000, then the fluid flow is……	M4.04	R

PART B

II. Answer **any Eight** questions from the following. Each question carries 3 marks.

(8x3=24)

		Module Outcome	Cognitive level
1	State Newton's third law of motion. Write any two properties of action and reaction forces.	M1.04	R
2	Derive the relation between linear velocity and angular velocity.	M2.01	U
3	Write an example each for positive work, negative work and zero work.	M3.01	U
4	Distinguish between kinetic energy and potential energy.	M3.02	U
5	Write any three disadvantages of friction.	M3.01	R
6	An elephant lifts a mass of 600 kg through a vertical height of 5 m in 10 seconds. Calculate the power of the elephant.	M3.03	A
7	What are the advantages of pyrometers?	M3.04	R
8	Distinguish between stress and strain.	M4.01	U
9	Write a brief note on atmospheric pressure.	M4.02	R
10	Define the term terminal velocity. Write Stoke's formula connecting viscous force and terminal velocity.	M4.03	R

PART C

Answer **all** questions from the following. Each question carries 7 marks.

(6x7=42marks)

		Module Outcome	Cognitive level
III	The readings of measurement of the length of a cylinder were found to be 3.7 cm, 3.9 cm, 3.8 cm, 3.6 cm and 3.5 cm. Find the absolute error, relative error and percentage error.	M 1.02	A
	OR		
IV	State law of conservation of momentum and prove it in the case of collision of two masses.	M1.04	U
V	Explain the banking of curves by applying the concept of centripetal force. What is the angle of banking for a curved track of radius 50m suitable for a maximum speed of 15 m/s?	M2.01	A
	OR		
VI	Define the moment of inertia of a rigid body. State and explain parallel axes theorem and perpendicular axes theorem.	M2.02	U
VII	Write a note on CGS, MKS and SI unit systems.	M1.01	R
	OR		
VIII	Distinguish between torque and angular momentum. Explain the law of conservation of angular momentum with an example.	M2.03	U
IX	Write a note on various forms of energy.	M3.02	R
	OR		
X	Distinguish between static friction and kinetic friction. List various methods to reduce friction.	M3.01	U
XI	Explain various types of elastic moduli associated with solids.	M4.01	U
	OR		
XII	State Bernoulli's theorem. Apply Bernoulli's theorem to explain the working of an atomizer.	M4.04	A
XIII	Explain the conduction of heat through solids. Write any two practical uses of thermal conductivity.	M3.04	U
	OR		
XIV	Derive the equation for absolute pressure at depth 'h' below the surface of a liquid of density 'ρ'.	M4.02	U

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