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#### DIPLOMA EXAMINATION IN ENGINEERING/TECHNOLOGY/MANAGEMENT/ COMMERCIAL PRACTICE –NOVEMBER -2021.

## **APPLIED PHYSICS - I**

(Maximum Marks : 75)

TED (21) -1003

(Revision-2021)

#### PART-A

[Time : 3 hours]

Marks

#### I. Answer all the following questions in one word or sentence

	1. Answer un die fene wing questions in one word of sentence	(9x1 = 9  Marks)	
		Module Outcome	Cognitive level
1	The standard used for the specification of a physical quantity is called	M1.01	R
2	If two vectors <b>A</b> and <b>B</b> are in the same direction, then the magnitude of their resultant, $R$ =	M1.03	U
3	In the case of Earth revolving around the Sun, the centripetal force for circular motion is provided by	M2.01	U
4	Moment of inertia of a thin uniform rod of length <i>l</i> and mass M, about an axis passing through its centre and perpendicular to its length, is	M2.02	R
5	Name a solid lubricant which is used in very heavy machinery	M3.01	R
6	Which is the prominent mode of heat transfer in solids?	M3.04	R
7	The deformation of the shape of an object without changing its volume is called	M4.01	R
8	The extra energy possessed by the surface layer of a liquid is called	M4.02	R
9	SI unit of coefficient of viscosity is	M4.03	R



# PART - B

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

## (8x3=24 Marks)

		Module Outcome	Cognitive level
1	State parallelogram law of vector addition. Draw a diagram to illustrate the parallelogram law.	M1.03	R
2	Calculate the angular velocity of the second hand of a watch	M2.01	А
3	Calculate the power of a drilling machine if it uses 3000 J of energy in 10 seconds.	M3.03	A
4	<ul> <li>Write one example each for the following energy transformations:</li> <li>(a) Conversion of kinetic energy into potential energy</li> <li>(b) Conversion of light energy into electrical energy</li> <li>(c) Conversion of electrical energy into sound energy</li> </ul>	M3.02	U
5	Explain the causes of friction	M3.01	U
6	Define power. Write the SI unit of power and how it is related to horse power.	M3.03	R
7	Differentiate between heat and temperature	M3.04	U
8	State Hooke's law. Write the SI unit of elastic modulus.	M4.01	R
9	What is capillarity and how it is related to angle of contact?	M4.02	U
10	The radius of a pipe decreases from 6 cm to 4 cm. If the velocity at the wider portion is 5 m/s, calculate the velocity in the narrow portion.	M4.03	A



# PART - C

# III. Answer **all** questions. Each question carries 7 marks.

(6 x 7 = 42 Marks)

		Module Outcome	Cognitive level
1	Write a note on various types of errors associated with the measurement of physical quantities.	M1.02	R
2	OR E 1: (1 ) C ALLIL (C 20) C 1C		
2	6 kg gun with a velocity of 300 m/s. Find the recoil velocity of the	M1.02	А
	gun.		
3	a) Derive the relation between linear velocity and angular		
	b) Define angular acceleration Derive the relation between	M2 01	TT
	linear acceleration and angular acceleration	112.01	0
	OR		
4	Write a note on the moment of inertia and radius of gyration of a	M2 02	р
	rotating rigid body.	M2.02	K
5	Explain the resolution of a vector with a diagram. Discuss one		
	real-life example of the resolution of vectors.	M1.03	U
(	OR		
6	Explain why the outer edge of the road is raised above the inner	M2 01	TT
	hanking	1012.01	U
7	State law of conservation of energy and prove it in the case of a		
,	freely falling body.	M3.02	U
	OR		
8	Write a note on heat transfer by convection and radiation.	M3.04	R
9	Discuss the elastic modulus related to length elasticity. A metal wire		
	of length 4 m and radius 1 mm is stretched by a load of 8 kg at one		
	end and keeping the other end fixed to a ceiling. Find the extension	M4.01	А
	produced if Young's modulus of the material of the wire is $0 = 10^{10} \text{ N/m}^2$	-	
	$9 \times 10^{-1} \text{N/m}$ .		
10	UN Explain the idea of surface tension and discuss an application of		
10	surface tension.	M4.02	U
11	Discuss the working of (a) mercury thermometer and		
	(b) pyrometer.	M3.04	U
	OR		
12	Derive the equation of continuity for a fluid flowing through a		
	pipe of varying cross section. Explain the principle of continuity	M4.04	U
1	with an example.		

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