Roll No. _____

END SEMESTER EXAMINATION
SEMESTER- I (New Course)

COURSE CODE : BS-103 **DURATION : 3 (THREE)HRS**
COURSE TITLE : APPLIED PHYSICS -I **MAXIMUM MARKS : 60**
SESSION : JULY-DEC.' 2021 **PASS MARKS : 40 %**

NOTE: *1. Attempt any 4 (four) questions .*
2. Mark for each question is shown against it.
3. Assume suitable logical data wherever necessary.

1.	**(a)**	Define a physical quantity. Explain fundamental and derived quantities with examples.	**(5)**
	(b)	Using the method of dimensions, deduce an expression for the energy of a body executing SHM, assuming that this energy depends upon mass, frequency and amplitude of the vibration of the body.	**(5)**
	(c)	Explain any five types of vectors.	**(5)**
2.	**(a)**	State the triangle and parallelogram law of vector addition.	**(4)**
	(b)	State and prove law of conservation of linear momentum.	**(6)**
	(c)	Why are roads banked? Calculate the magnitude of angle of banking.	**(5)**
3.	**(a)**	What is friction. Explain the laws of friction.	**(1+4)**
	(b)	State the conservation of Mechanical energy. Prove that the Mechanical energy of a body falling freely is constant at all points of its motion.	**(6)**
	(c)	Note down the dimensions and SI unit of Work and Power.	**(2+2)**
4.	**(a)**	Define moment of inertia. What is radius of gyration?	**(4)**
	(b)	State the Perpendicular axes theorem.	**(2)**
	(c)	Differentiate between centripetal and centrifugal force.	**(3)**
	(d)	State Hooke's law. Explain stress-strain curve with the help of a diagram.	**(2+4)**
5.	**(a)**	Derive the relationship between angular and linear velocity.	**(3)**
	(b)	Explain streamline and turbulent flow. What is critical velocity?	**(4+1)**
	(c)	What do you understand by atmospheric pressure, gauge pressure and absolute pressure? Write down the relationship between them.	**(4)**
	(d)	Define surface tension. How does temperature and presence of impurities effect surface tension?	**(3)**
6.	(a)	Write short notes on the following: 1) Equation of continuity 2) Force 3) Reynolds number 4) Torque	**(4x2)**
	(b)	Differentiate between scalars and vector quantities.	**(3)**
	(c)	Define Viscosity and coefficient of viscosity. Give the dimensions and SI unit of coefficient of viscosity.	**(4)**

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