I UNIT TEST

STD: XII **Sub: Physics** **MARKS: 25**

DATE: **TIME:**

Q.1 MCQ **(4)**

(i)When the angular acceleration of a rotating body is zero, which physical quantity will be equal to zero?

(a) Angular momentum (b)Moment of inertia (c)Torque (d)Radius of gyration

(ii)A body of moment of inertia 5kg m^2 rotating with angular velocity 6 rad/s has the same kinetic energy as a mass of 20 kg moving with a velocity of ____

(a)5 m/s (b)4m/s (c)3m/s (d)2 m/s

(iii) If the polarising angle for a given medium is 60^0,then the refractive index of the medium is _____

(a)1/ 3 (b) 3/2 (c)1 (d) 3

(iv)The kinetic energy of a rotating body depends upon_____

(a)distribution of mass only. (b)angular speed only

(c)distribution of mass and angular speed. (d)angular acceleration only.

Q.2 Attempt any six (12)

(i)Explain the concept of centripetal force.

(ii)Draw a neat,labelled diagram for a liquid surface in contact with a solid,when the angle of contact is acute.

(iii) A solid sphere of mass 1 kg rolls on a table with linear speed 2 m/s,find its total kinetic energy.

(iv) Derive an expression for critical velocity of a satellite revolving around the earth in a circular orbit.

(v)What is diffraction of light? Explain its two types.

(vi)State the theorem of parallel axes and theorem of perpendicular axes about moment of inertia.

(vii)For a glass plate as a polarizer with refractive index 1.633,calculate the angle of incidence at which light is polarized.

Q.3 With the help of huygen theory,explain reflection of plane surface. (4)

Q.4What is banking of a road? Obtain an expression for maximum safety speed with which vehicle can be safely driven along a curved banked road(Ignore friction) (5)