

## Question Bank (G scheme)

Name of subject: Applied Physics

Subject code: 17202

Semester: II

Unit Test :I

Course : ME

## Chapter 1 : Motion

### Questions for 2 marks-

State three equations of motion.

1. Define angular velocity and angular acceleration.
2. Define momentum and Impulse.
3. Define work and state its unit
4. State any two applications of centrifugal force.
5. Definition of a projectile motion, angle of projection
6. An object having mass 2 Kg. whirled in a horizontal circle with radius 6 cm having velocity 20 m/sec, Find centripetal force and centripetal acceleration.
7. An object is projected by an angle  $29^\circ$  with horizontal surface with velocity 20 m/s, Find horizontal range & time of flight.
8. An object is revolving with 80 rpm, having radius 6 cm. Find linear velocity & Angular velocity.
9. Difference in between centripetal force and centrifugal force.
10. Write the formula for height, horizontal range with its specific meaning of symbol.
11. A stone having mass 2 Kg. revolved in horizontal circle in 40 rpm, find linear velocity, angular velocity, if the radius is 10 cm.

### Questions for 3 marks-

1. Find the relation between angular velocity and linear velocity.
2. State Newton's second law of motion with example.
3. Explain work-energy principle.
4. Minute hand in a clock having length 7 cm. Find linear velocity and angular velocity.
- 5.
6. What is the average speed in kilometers per hour for a horse that gallops a distance of 15 km in a time of 30 min?
7. What is the acceleration of a car that increases its velocity from 0 to 100 km/h in 10 s?
8. What is the acceleration of a vehicle that changes its velocity from 100 km/h to a dead stop in 10 s?
9. Find the maximum height and range for  $v_o = 10$  m/s, and  $\theta = 90^\circ$ .
10. A ball is launched into the air at an angle of  $32.0^\circ$  with an initial speed of 18.0 m/s. Neglecting air resistance, determine how long the ball will be in the air ?
11. A ball is tossed into the air at a speed of 64.0 m/s at an unknown angle. If the ball is observed to rise to a maximum height of 7.80 m, at what angle was the ball thrown relative to the ground ?

12. A skater initially turning at 3 rev/sec slows down with constant angular deceleration and stops in 4 seconds. Find her angular deceleration and the number of revolutions she makes before stopping.
13. A 1200 kg car is turning a corner at a speed of 8 m/sec and it travels along the arc of a circle in the process. If the radius of this circle is 9 m, what is the centripetal force required to hold the car in the circular path?

## **Chapter 2 : Nondestructive Testing of materials**

### **Questions for 2 marks-**

- 1) State any four N.D.T methods used for testing.
- 2) Explain concept of Ultrasonic waves.
- 3) Applications of N.D.T.
- 4) Applications of Ultrasonic waves.
- 5) Applications of ultrasonic testing.
- 6) Drawbacks of N. D. T.
- 7) Applications of L. P. T.
- 8) Limitations of L.P.T.

### **Questions for 3 marks-**

- 1) Describe the method of production of ultrasonic waves
- 2) Distinguish between destructive and nondestructive Test.
- 3) Properties of ultrasonic waves..
- 4) State the criterion for selection of N.D.T method.
- 5) Explain LPT method.
- 6) Write the properties of ultrasonic waves and write its range.