QUATERLY EXAM

MODEL QUESTION PAPER

28.08.2023

XI- PHYSICS

TIME ; 3.00 hrs TOTAL : 70 marks

PART - I (15 X 1 = 15m)

I. Answer all the questions

1.The electric current symbol are

a) A b) AS c) Cd d) K

2. If π = 3.14, then the value of π2 is

(a) 9.8596 (b) 9.860 (c) 9.86 (d) 9.9

3. The unit of meter is

(a) length (b) time (c) velocity (d) force

4. Which one of the following physical quantities cannot be represented by a scalar?

(a) Mass (b) length (c) momentum (d) magnitude of acceleration

5 Horse power is

(a) 800 W (b) 746 W (c) zero (d) infinity

6. If a particle executes uniform circular motion in the xy plane in clock wise direction, then the angular velocity is in

(a) +y direction (b) +z direction (c) -z direction (d) -x direction

7. momentum I closely related to

(a) force (b) impulse (c) velocity (d) K.E

8when milk is churned gets separated due to

(a) centripetal force (b) centrifugal force

(c) frictional force (d) normal force

9. The centrifugal force appears to

(a) real force (b) pseudo force

(c) imaginary force (d) All

10 Work is a quantity

(a) scalar (b) vector (c) Tensor(d) non tensor

11. The work done by the conservative force for a closed path is

(a) always negative (b) zero (c) always positive (d) not defined

12. Two equal masses m1 and m2 are moving along the same straight line with velocities 5 ms-1 and -9 ms-1 respectively. If the collision is elastic, then calculate the velocities after the collision of m1 and m2, respectively

(a) -4ms-1 and 10 ms-1 (b) 10ms-1 and 0 ms-1

(c) -9ms-1 and 5 ms-1 (d) 5 ms-1 and 1 ms-1

13. A couple produces,

(a) pure rotation (b) pure translation (c) rotation and translation (d) no motion

14. moment of inertia symbol are

(a) L (b) I (c) U (d) K

15. A round object of mass M and radius R rolls down without slipping along an inclined plane. The frictional force,

(a) dissipates kinetic energy as heat. (b) decreases the rotational motion.

(c) decreases the rotational and transnational motion

(d) converts transnational energy into rotational energy

PART - II 6 X 2 = 12

II. Answer any 6 of the following questions . Question No. 24 is compulsory

16. Define error.

17. Check the correctness of the **equation ½ gt^2** using dimensional analysis method.

18. Define Radian

19. convert 54 kmph into m/s

20. State Newton's Third law of motion.

21. Jumping on a concrete cemented floor is more dangerous than jumping on the sand. Why?

22. Compare elastic collision and inelastic collision.

23. Define Torque

24. An object of mass 2 kg falls from a height of 5 m to the ground. What is the work done by the gravitational force on the object? (Neglect air resistance; Take g = 10 m s-2)

PART – III (6 X 3 = 18m)

III. Answer any 6 of the following questions . Question No. 33 is compulsory

25. Explain the dimensions less variables with example.

26. Give the applications of the dimensional analysis.

27. Give the kinematic equations of Linear motion.

28. Prove that F = ma

29. State Lami's theorem with formula

30. Calculate the centrifugal force experienced by a man of 60 kg standing at Chennai? (Given: Latitude of Chennai is 13°)

31. Obtain the relation between momentum and KE.

32. State the principle of moments.

33. Convert 76 cm of mercury pressure into Nm−2 using the method of dimensions.

PART - IV (5 X 5 = 25m)

IV. Answer all the questions

34. (a) Write a note on parallex method and radar method to measure larger distances (OR)

(b) State and prove perpendicular axis theorem.

35. (a) Explain the motion of blocks connected by a string in Horizontal direction

(OR)

(b) Derive an expression for In elastic collision .

36. (a) Derive the moment of inertia in rod

(OR)

(b) Limitations of dimensional analysis

37. (a) Explain in detail the projection motion .calculate the maximum height

(OR)

(b) Using free body diagram, show that it is easy to pull an object than to push it.

38. (a) State and explain work – kinetic energy principle. Mention any three examples for it.

(OR)

(b) Derive the Angle of repose

……

Prepared by

Dr. G.THIRUMOORTHI M.SC B.ED,PH.D (PHYSICS)

GOVT ARTS COLLEGE SALEM (A)

SALEM – 7

8610560810