MOUNT CARMEL MISSION MAT HER SEC SCHOOL

Class:11 **KALLAKURICHI.** **Max marks:70**

Time: 3.00hours

PHYSICS

Part – I

Answer the following **15×1=15**

1. Which one of the following physical quantity have same dimension
   (a) Torque and work done (b) energy and angular modem
   (c) angular momentum and linear momentum. (d) Force and Torque
2. Which one of the following physical quantities cannot be represented by a scalar ?
   (a) mass (b)length (c)momentum. (d)magnitude of acceleration
3. Which of the following force is pseudo force?
   (a) viscos force (b)surface tension (c)centrifugal force. (d) gravitational force
4. The linear momentum of the object the object is increased by 0.3 % then the kinetic energy is increased by :
   (a) 0.1 % (b) 0.2% (c) 0.4% (d) 0.6%
5. The unit of angular acceleration is……
   (a) rad s^{-1} (b)rad $m^{-1.}$ (c) rad s^{-2} (d) rad m^2
6. If the radius of earth is ' R `what height acceleration due to gravity becomes zero?
   (a) R (b) R/4 (c) 2R (d)R/2
7. If a wire is stretched to double of its original length, then the strain in the wire is.
   (a)1 (b)2 (c)3 (d) 4
8. The efficiency of heat engine working between the freezing point and boiling point of water is.
   (a)6.25% . (b)20% (c) 12.5%. (d) 26.8%
9. Which of the following is an example of non linear triatomic molecules
   (a) water. (b) hydrogen (c)helium (d) Nitrogen
10. In a simple harmonic oscillation, the acceleration against displacement for one complete oscillation will be
    (a) an ellipse. (b) a circle (c)a parabola. (d)straight line
11. The waves produced by a motor boat sailing in a water are
    (a)transverse (b)longitudinal (c)stationery (d) Longitudinal and transverse
12. In an isochoric process,we have
    (a) W=0 . (b) Q=0 . (c) $\Delta U=0$ (d) $\Delta T=0$
13. 1 hp is
    (a)707W (b) 786W (c)647W . (d)746 W
14. For a satellite moving in an orbit around the earth, the ratio of kinetic energy to potential
    (a)2 . (b)$\sqrt{2}$ (c)1/2 (d)$1/\sqrt{2}$
15. One lunar month is equal to…….
    (a) 29.5 days . (b)27.3 days. (C) 31 days (d) 28.5 days

Part- II

Answer any 6 question. (Q no 24 is) compulsory. **6 x 2 = 12**

16. What are the dimensional variables? Give example
17. What is projectile? give example
18. A car Turn with velocity 50ms^{-1} on the circular road of radius of curvature 10 m . Calculate the centrifugal force experienced by a person of mass 60 kg inside the car?
19. What is the difference between sliding and sleeping?
20. What is Reynold's number? give it is significance.
21. What is PV diagram?

22. List the factors affecting the mean free path.
23. What is the difference between transverse waves longitudinal waves.
24. 2if the length of simple pendulum is increased by 44 percentage from it is original length calculate the percentage increase in time period of the pendulum.

Part-III

Answer any 6 question. (Q .number 33 is)compulsory. 6 x 3 = 18

25. What are non inertial frames?
26. how are sound waves classified?
27. Explain damped oscillation? give an example.
28. Write down the postulates of kinetic theory of gases any 6 points.
29. A person does 30 kJ work on 2 kg of water by using paddle wheel .while stirring, around 5 kcal of heat is released from the water through it is container to the surface and surrounding by thermal condition and radiation. what is the changing in internal energy of the system?
30. Write the application of surface tension.
31. Write a short notes and Polar satellites.
32. .drive the expression of kinetic energy in rotation.
33. What is the angle of projection to have a maximum range 'kitti pull'? if one strikes Kitting pull with of 98 ms^{-1} then what is the maximum range achieved?

Part-IV

Answer all the questions. 5 x 5 = 25

34. (a)Explain in detail the various types of errors

(OR)

(b) Derive the time period of satellite orbiting the Earth.

35. (a) Explain in detail the triangle law of addition.

(OR)

(b) State and prove Bernoulli's theorem for a flow of incompressible, non-viscous ,and streamlined flow of fluid.

36. (a) Briefly explain the origin of friction.show that in an inclined plane, angle of friction is equal to angle of repose.

(OR)

(b)Derive the work done in an adiabatic process.

37. (a) Arrive at an expression for power and velocity. Give some examples for the same.

(OR)

(b) Discuss in detail the energy in simple harmonic motion.

38. (a) explain how overtones are produced in a (a) closed organ pipe (b) open organ pipe

(OR)

(b) Discuss rolling on inclined plane and arrive at the expression for the acceleration.

K. SATHISH.. M.SC., BEd
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