doubtnut
India's Number 1 Education App

PHYSICS

BOOKS - CHETANA PHYSICS (MARATHI ENGLISH)

Unit Test 2

Exercise

1. Derive expression for final velocities v_1 and v_2 for an Elastic collsion.

Watch Video Solution

2. The magnitude of scaler product of two unit vectors perpendicular to each other is.

A. zero

B. 1

C. (-1)

D. 2

Answer:

Watch Video Solution

3. Light year is a unit of

A. Time

B. Mass

C. Distance

D. Luminosity

Answer:

Watch Video Solution

4. For a particle having a uniform circular motion, which of the following is constant.

A. Speed

B. Acceleration

C. Velocity

D. Displacement

Answer:

Watch Video Solution

5. Dimension of Torque is

A. $\left[M^1L^1T^{-2}\right]$

B. $\left[M^1L^2T^{-2}\right]$

C. $\left[M^0L^1T^{-1}\right]$

D. $\left[M^1L^1T^1\right]$

Answer:

Watch Video Solution

6. The weight of a particle at the centre of the earth is

A. infinite

B. zero

C. same as that at other places

D. greater than at the pole

Answer:

 Watch Video Solution

7. The ability of a material to resist fracturing when force is applied to it, is called

A. toughness

B. hardness

C. elasticity

D. plasticity

Answer:

Watch Video Solution

8. If α, β and γ are coefficients of linear, area and volume expansion of a solid then

A. $\alpha : \beta : \gamma \; 1 : 3 : 2$

B. $\alpha : \beta : \gamma \; 3 : 1 : 2$

C. $\alpha : \beta : \gamma \; 2 : 3 : 1$

D. $\alpha : \beta : \gamma \; 3 : 2 : 1$

Answer:

Watch Video Solution

9. What is thermal stress?

Watch Video Solution

10. Define Poisson's ratio.

Watch Video Solution

11. Draw a graph showing the variation of gravitational acceleration due to depth from the earth's surface.

Watch Video Solution

12. Define coefficient of restitution

Watch Video Solution

13. Define free fall

Watch Video Solution

14. $\vec{A} = 2\hat{i} + 3\hat{j} + 4\hat{k}$ and $\vec{B} = \hat{i} - 2\hat{j} + 3\hat{k}$ find $\vec{A} \cdot \vec{B}$

Watch Video Solution

15. Write the dimension value of power & pressure.

Watch Video Solution

16. The diameter of a sphere is 2.14 cm, calculate the volume of the sphere to the correct number of significant figures.

Watch Video Solution

17. Show that vectors $\vec{a} = 2\hat{i} + 5\hat{j} + 6\hat{k}$ and $\vec{b} = \hat{i} + \frac{5}{2}\hat{j} + 3\hat{k}$ are parallel

Watch Video Solution

18. If the motion of an object is described by $x = f(t)$. Write formula for instantaneous velocity and acceleration.

Watch Video Solution

19. Justify the statement, "Work and energy are the two sides of a coin."

Watch Video Solution

20. Calculate the speed of a satellite in an orbit at a height of 1000 km from the Earth's surface.

$M_E = 6 \times 10^{24} kg\, R_E = 6.410^6 m$

Watch Video Solution

21. State any four methods to reduce friction

Watch Video Solution

22. Which materials can be used asthermal insulates and why?

Watch Video Solution

23. How is a thermometer calibrated?

Watch Video Solution

24. A rubber band originally 30 cm. long is stretched to a length of 32cm by a certain load. What is the strain produced?

Watch Video Solution

25. Why does an astronaut in an orbiting satellite have a feeling of weight lessness?

Watch Video Solution

26. Four uniform solid cubes of edges 10 cm, 20 cm, 30 cm and 40 cm are kept on the ground, touching each other in order. Locate centre of mass of their system.

Watch Video Solution

27. In Ohm's experiments, the values of the unknown resistances were found to be 6.12Ω, 6.09Ω, 6.22, 6.15Ω. Calculate the absolute error, relative error and percentage error in these measurements.

Watch Video Solution

28. State any six properties of scalar product.

Watch Video Solution

29. Show that the path of a projectile is a parabola

Watch Video Solution

30. Discuss the variation of acceleration due to gravity with altitude.

Watch Video Solution

31. What is the stress in a wire which is 50 meter long and 0.01cm2 in crosssection, if the wire bears a load of 100 kg?

Watch Video Solution

32. The thermal conductivity of steel is 0.026 k cal/ms K. Find the temperature diference between two sides of a steel plate 4 cm thick, when heat is transmitted through the plate at the rate of 400 k cal per minute per squar metre of steady state.

Watch Video Solution

33. Define Sublimation and Triple point. In a random temperature scale X, water boils at

$200^\circ X$ and freezes at 20° X. Find the boiling point of a liquid in this scale if it boils at $62^\circ C$

Watch Video Solution

34. Derive an expression for strain energy per unit volume of the material of a wire.

Watch Video Solution

35. Derive an expression for critical velocity of satellite. Calculate the acceleration due to

gravity at a height of 300 km from the surface of the earth. $M = 6 \times 10^{24} kg$ R = 6400 km.

Watch Video Solution

36. State and prove the law of conservation of linear momentum.

Watch Video Solution