



PHYSICS

BOOKS - JBD PUBLICATION

Model Test Paper 14

Exercise

1. Impulse of force is measured in:

A. N

B. Ns

C. Joule

D. Watt

Answer:



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2. Light year is the unit of



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3. The distance travelled by a moving object/particle cannot be



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4. Power is given by the relation, $P = \vec{F} \times \vec{V}$.

(yes / no)



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5. Write the unit of angular momentum.



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6. What do you mean by thermal equilibrium ?

Define zeroth law of thermodynamics and deduce the definition of temperature from it.



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7. What is an overtone?



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8. If one of the rectangular components of 100 N is 50 N, calculate the other component.



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9. What is force of limiting friction and sliding friction?



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10. What is elastic collision? State the necessary conditions for it.



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11. Define radius of gyration.



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12. What is the value of escape velocity on a planet whose mass is 4 times and radius is

half of earth? For earth escape velocity = 11.2 km s^{-1} ?



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13. The tensile strength of steel is $5 \times 10^7 \text{ Nm}^{-2}$. Find the maximum length of the wire that can hang vertically, without breking it. Densityof steel is $8 \times 10^3 \text{ kg m}^{-3}$.



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14. What are the limitations of dimensional analysis?



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15. Mention three conservation laws of mechanics.



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16. When a projectile is projected at an angle with the horizontal, find the angle of projection for its maximum horizontal range and find the corresponding height achieved by the projectile?



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17. A body travels 4 m in 3rd second 12 m in 5th second. Of the motion of the body is

uniformly accelerated , then how much distance will it travel in the next 3 seconds?



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18. What are the methods of reducing friction?/



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19. A machine gun of mass 20 kg fires 35 gram bullet at the rate of 50 bullets per second with

a speed of 400 ms^{-1} . What force must be applied to the gun to keep it in position?



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20. State and prove work energy theorem.



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21. Derive Newton's law of gravitation from Kepler's law.



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22. Define surface tension.



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23. The sound of explosion on the moon cannot be heard on earth, why?



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24. State Doppler's Effect.



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25. State the characteristics of wave motion.



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26. Name the cgs and SI unit of coefficient of viscosity .What is the relation between them?



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27. Define stress and strain. Also describe briefly the types of stress and strain.



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28. What is convection of heat transmission?



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29. Find a relation between co-efficient of linear expansion and co-efficient of cubical

expansion of a solid.



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30. Define a rigid body.



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31. Drive the equations of rotatory motion,

$$\omega^2 - \omega_0^2 = 2\alpha\theta \text{ and } \theta = \omega_0^t + \frac{1}{2}\alpha t^2, \text{ where}$$

every letter has its usual meaning.



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32. Define moment of inertia



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33. Define the theorem of parallel axes and apply it to find the moment of inertia of a uniform rod about an axis passing through one of its ends and perpendicular to its length.



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