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**Max Time : 2 hr** **Class = 9th Science Test Max Marks : 45**

**Complete Physics**

1. Multiple choice questions : [ 1 X 15 = 15 ]
2. Flow of water in rivers is governed by :

|  |  |
| --- | --- |
| a) Universal law of gravitation | b) Acceleration due to gravity |
| c) Keplar’s law | d) None of the above |

1. According to the third law of motion, action and reaction :
2. Always act on the same body.
3. Always act on different bodies in opposite directions.
4. Have same magnitude and directions.
5. Act on either body at normal to each other
6. A body travels a distance of meter over a semicircle of radius ‘r’. let r = 1. What is the displacement of the particle is :

|  |  |  |  |
| --- | --- | --- | --- |
| a) 2 m | b) m | c) zero | d) 1 m |

1. The power of an agent that consumes 1000 J of energy in 10 s is :

|  |  |  |  |
| --- | --- | --- | --- |
| a) 1 kW | b) 10 kW | c) 0.1 kW | d) 10 W |

1. A man of mass 60 kg possesses kinetic energy of 750 J. The velocity with which the man is running is :

|  |  |  |  |
| --- | --- | --- | --- |
| a) 25 m/s | b) 5 m/s | c) 10 m/s | d) 15 m/s |

1. In case of negative work, the angle between the force and displacement is :

|  |  |  |  |
| --- | --- | --- | --- |
| a) 0 | b) 45 | c) 90 | d) 180 |

1. An objects travels 10 km at a speed of 100 m/s and another 10 km at 50 m/s. The average speed over the whole distance is :

|  |  |  |  |
| --- | --- | --- | --- |
| a) 75 m/s | b) 55 m/s | c) 66.7 m/s | d) 33.3 m/s |

1. Retardation of a body is :

|  |  |
| --- | --- |
| a) Negative speed of the body | b) Negative acceleration of the body |
| c) Negative velocity of the body | d) None of the above |

1. A body weigh one kg on moon. How much will it weigh on earth?

|  |  |  |  |
| --- | --- | --- | --- |
| a) 1 kg | b) 9.8 kg | c) 6 kg | d) 10 kg |

1. With height and depth from the surface of earth, value of acceleration due to gravity is :

|  |  |
| --- | --- |
| a) decreases | b) increases |
| c) decrease with height and increase with depth | d) remain same |

Fill in the Blanks :

1. Work done is \_\_\_\_\_\_\_\_ when the force is in the direction of displacement.
2. Kinetic energy is the energy possessed by an object due to its \_\_\_\_\_\_\_\_\_\_.
3. The kinetic energy of an object of mass 15 kg moving with a uniform speed of 4 m/s is \_\_\_\_\_\_\_\_\_.
4. The sum of kinetic energy and potential energy of an object is called its total \_\_\_\_\_\_\_\_\_ energy.
5. An electric motor exerts a force of 20 N on a cable and pulls it through a distance of 15 m in one minute. The power supplied by the motor in watts is \_\_\_\_\_\_\_\_\_.
6. The frequency of a source of sound is 100 Hz. How many times does it vibrates in a minute. [ 1 ]
7. Define average power. [ 1 ]
8. What do you mean by free fall? [ 1 ]
9. Why does a block of plastic released under water, come up to the surface of water? [ 1 ]
10. When a carpet is beaten with a stick, dust come out of it. Explain. [ 1 ]
11. State the laws of reflection of sound. [ 2 ]
12. How much momentum will a dumb-bell of mass 10 kg transfer to the floor if it falls from a height of 80 cm? Take its downward acceleration to be 10 m/s2. [ 2 ]
13. An object weighs 10 N when measured on the surface of the Earth. What would be its weight when measured on the surface of Moon? [ 2 ]
14. State the importance of Universal law of gravitation. [ 2 ]
15. Differentiate between distance and displacement. [ 2 ]
16. Find the pressure exerted on skin of balloon with a force of 2.1 N using: (a) Your finger (b) a needle. Assume the area of your finger tip is 1 x 10 – 4 m2, and the area of needle tip is 2.5 x 10 – 7 m2. (c) Find the maximum force necessary to burst the balloon with the needle, given that the balloon bursts with a pressure of 3 x 10 5 N/m2. [ 3 ]
17. Derive a derivation that express kinetic energy of an object. [ 3 ]
18. (a) A car travelling at 36 km/h speeds upto 72 km/h in 5 sec What is its acceleration? If the same car stops in 20 sec, what is the retardation. [ 3 ]

(b) Joseph jogs from one end A to the other end B of a straight 300 m road in 2 minutes 30 seconds and then turns around and jogs 100 m back to point C in another 1 minute. What are the joseph’s average speeds and velocities in jogging (a) from A to B (b) from A to C

1. (i) A 5 kg ball is dropped from a height of 10 m. [ 3 ]

(a) Find the initial potential energy of the ball.

1. Find the kinetic energy just before it reaches the ground.
2. Calculate the velocity before it reaches the ground

(ii) An electric heater is rated 1500 W. How much energy does it use in 10 hours?

1. (a) A sound wave travels at a speed of 339 m/s. If its wavelength is 1.5 cm, then what is the frequency of the wave? Will it be audible? [ 3 ]

(b) A person has hearing range from 20 Hz to 20kHz. What are the typical wavelength of sound waves in air corresponding to these two frequencies? Speed of sound in air is 344 m/s.