



St. Lawrence High School
A Jesuit Christian Minority Institution



Term : 1st

Work Sheet – 22

Subject – Physics

Class – XI

Date – 10.07.20

Chapter – Work, Power & Energy

Topic – Conservative and non-conservative system

Choose the correct option for the following questions.

1 × 15 = 15

1. According to work-energy theorem , change in kinetic energy is equal to work done by –
 - a. Conservative force
 - b. Non- Conservative force
 - c. External Conservative force
 - d. All of above
2. Work energy theorem is applicable for –
 - a. Only gravitational force
 - b. Only frictional force
 - c. Any central force
 - d. All of the above
3. The work done by a conservative force is –
 - a. Path dependent
 - b. Path independent
 - c. Zero
 - d. None of these
4. The work done by a non conservative force over a close path is –
 - a. Positive always
 - b. Negative always
 - c. Zero
 - d. Can be +ve or –ve , but can never be zero
5. The work done by a non conservative force over a close path is –
 - a. Positive always
 - b. Negative always
 - c. Zero always
 - d. Can be +ve or –ve , but can never be zero
6. A person pulls a bucket of water from a well of depth h. If the mass of the uniform rope is m and that of the bucket full of water is M, then the work done by the person is –
 - a. $\left(m + \frac{M}{2}\right)gh$
 - b. $\frac{1}{2}(m + M)gh$
 - c. $(m + M)gh$
 - d. $\left(\frac{m}{2} + M\right)gh$
7. A projectile is fired from the origin with a velocity v at an angle θ with x axis. The speed of the projectile at an altitude h is –
 - a. $v \cos \theta$
 - b. $\sqrt{v^2 - 2gh}$
 - c. $\sqrt{v^2 \sin^2 \theta - 2gh}$
 - d. None of these

8. A particle of mass m moves from rest under the action of a constant force F which acts for two seconds. The maximum power attained is –
 - a. $2Fm$
 - b. F^2/m
 - c. $2F/m$
 - d. $2F^2/m$
9. A block of mass 5kg is raised from the bottom of a lake to a height of 3m with out any change in kinetic energy. if the density of the block is 3000kg/m^3 , then the work done is equal to –
 - a. 100J
 - b. 150J
 - c. 50J
 - d. 75J
10. A force $\vec{F} = 3t\hat{i} + 5\hat{j}$ N acts on a body due to which its displacement varies as $\vec{S} = 2t^2\hat{i} - 5\hat{j}$ m. work done by this force in 2sec is –
 - a. 32J
 - b. 24J
 - c. 46J
 - d. 20J
11. An open knife of mass m is dropped from a height h on a wooden floor. If the blade penetrates up to the depth d into the wood, the average resistance offered by the wood is –
 - a. $mg\left(1 + \frac{h}{d}\right)$
 - b. $mg\left(1 + \frac{h}{d}\right)^2$
 - c. $mg\left(1 - \frac{h}{d}\right)$
 - d. $mg\left(1 + \frac{d}{h}\right)$
12. A bullet moving with speed 100m/s can just penetrate into two planks of equal thickness. Then the number of such planks it can penetrate if the speed doubled is –
 - a. 6
 - b. 10
 - c. 4
 - d. 8
13. A ball is dropped onto a floor from height of 10m. if 20% of its initial energy is lost, then the height of bounce is –
 - a. 2m
 - b. 4m
 - c. 8m
 - d. 6.4m
14. A spring of spring constant $5 \times 10^3 \text{N/m}$ is stretched initially by 5cm from the unstretched position. The work required to further stretch the spring by another 5cm is –
 - a. 6.25 N-m
 - b. 12.50 N-m
 - c. 18.75 N-m
 - d. 25 N-m
15. A pump is required to lift 800kg of water per minute from a 10m deep well and eject it with speed of 20m/s. the required power in watt is –
 - a. 6000
 - b. 4000
 - c. 5000
 - d. 8000