

**Work, Energy & Power****DPP - 1**

1. A stone is tied to a string and then whirled in a circle. The work done on it by the string is:
 

(A) Positive	(C) Zero
(B) Negative	(D) Undefined
2. The work done by a force on a body will be positive if the :
 

(A) Body does not move	(C) Body moves along the direction of the applied force
(B) Body moves perpendicular to the direction of motion	(D) Body moves opposite to the direction of the applied force
3. A coolie with a suitcase on his head is climbing up on a ladder with uniform speed. The work done by the coolie on the suitcase is :
 

(A) Positive	(C) Zero
(B) Negative	(D) Undefined
4. Work done upon a body is :
 

(A) A vector quantity	(C) A scalar quantity
(B) Always positive	(D) Always negative
5. Which among the following can be unit of work :
 

(A) dyne-cm	(C) N - cm
(B) N - m	(D) All of these
6. When a force retards the motion of a body, the work done is :
 

(A) Positive	(C) Zero
(B) Negative	(D) Undefined
7. The ratio of S.I. unit to c.g.s unit of energy is :
 

(A) $10^3$	(C) $10^7$
(B) $10^{-3}$	(D) $10^{-7}$
8. When a player hits a football, it moves along the curved path and then falls to the ground. What is the work done by the force of gravity on the football?
 

(A) Positive	(C) Zero
(B) Negative	(D) Undefined
9. A moving body need not have:
 

(A) Potential energy	(C) Momentum
(B) Kinetic energy	(D) Velocity
10. Potential energy of your body is minimum when:
 

(A) You are standing	(C) You are sitting on chair
(B) You lie down on floor	(D) Sitting on the ground
11. Define work and give its S.I. and c.g.s unit.
12. Define energy. Name various forms of energy.
13. A battery lights a bulb. Describe the energy changes involved in the process.
14. Define mechanical energy.
15. If the mass of the body is changed to 'n' times, then what should be the change in velocity such that its K.E. remains same?

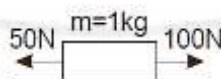
**Work, Energy & Power****DPP - 2**

1. A spring is compressed. The potential energy of spring will :  
(A) Remain unchanged (C) Decrease  
(B) Increase (D) Become zero
2. A man is climbing a staircase. The energy he uses does not depends upon :  
(A) The height of the staircase (C) The time taken to reach the top  
(B) The weight of his body (D) The mass his body
3. When a ball is thrown upwards, its total energy :  
(A) Increases (C) Remains same  
(B) Decreases (D) None of these
4. The gravitational potential energy is a :  
(A) Vector quantity (C) Positive quantity  
(B) Scalar quantity (D) Negative quantity
5. The kinetic energy of a body is a :  
(A) Vector quantity (C) Positive quantity  
(B) Scalar quantity (D) Both (B) and (C) are true
6. The velocity of a body of mass 4 kg possessing K.E. of 0.02 J is :  
(A) 0.01 m/s (C) 1 m/s  
(B) 0.1 m/s (D) None of these
7. A flying bird has :  
(A) Only potential energy (C) Mechanical energy  
(B) Only kinetic energy (D) None of these
8. The balls of different masses have the same K.E. Then the :  
(A) Heavier ball have greater momentum than the lighter ball  
(B) Lighter ball has greater momentum than the heavier ball  
(C) Both balls have equal momentum  
(D) Both balls have zero momentum
9. Which of the following forces are conservative :  
(A) Gravitational force (C) Viscous force  
(B) Friction force (D) All of these
10. Kinetic energy of an object which does positive work always :  
(A) Increases (C) Remains same  
(B) Decreases (D) Can't say
11. The KE of a body is increased by 300%, find the percent increase in momentum.
12. Two bodies of masses 'm' and '2m' thrown with a velocity of 'v' and '3v' from the surface. What is the ratio of potential energies at the highest point?
13. When the mass of a body is increased by 100% and velocity of the body is decreased by 50%. What is the percentage change in its kinetic energy?
14. State law of conservation of energy.
15. Derive relation between KWh and Joule.

**Work, Energy & Power**

**DPP - 3**

1. Horse power is the unit of  
 (A) Work (C) Energy  
 (B) Power (D) Force
2. If Rahul has done the same amount of work in less time compared to Rohan then:  
 (A) Rahul has more power (C) Both have equal power  
 (B) Rohan has more power (D) Rahul has more energy
3. If positive work is done on an object, its kinetic energy:  
 (A) Increases (C) Remains same  
 (B) Decreases (D) Can't say
4. If negative work is done on an object, its kinetic energy:  
 (A) Increases (C) Remains same  
 (B) Decreases (D) Can't say
5. If the total work done on an object by a force is zero along a closed path then the force is:  
 (A) Conservative force (C) Zero  
 (B) Non-conservative force (D) Negative force
6. Work energy theorem is applicable for:  
 (A) Conservative forces (C) All forces  
 (B) Non-conservative forces (D) None of these
7. Work energy theorem states that change in K.E. of an object is equal to:  
 (A) Work done by all forces acting on it  
 (B) Work done by conservative forces acting on it  
 (C) Work done by non-conservative forces acting on it  
 (D) None of these
8. A body of mass 0.1 kg is dropped from a height of 10 m at a place where  $g = 10 \text{ ms}^{-2}$ . Its K.E. just before it strikes the ground is:  
 (A) 1 J (B) 1.04 J (C) 3.5 J (D) 10 J
9. A body of mass 10 kg is dropped from a point where it possess an energy of 100 J. Then the K.E. when it reaches ground would be:  
 (A) 1000 J (B) 100 J (C) 10 J (D) None
10. An object of mass 'm' is moving with a constant velocity v. How much work should be done on the object in order to bring the object to rest:  
 (A) mv (C)  $mv^2$   
 (B) mgv (D)  $\frac{1}{2}mv^2$
11. Calculate the work done to increase the velocity of a car from 30 km/h to 60 km/h, if the mass of the car is 1500 kg.
12. A lorry and a car moving with the same K.E. are brought to rest by application of brakes which provide equal retarding forces which one of them will come to rest in a shorter distance. Explain.



13. If initial velocity of a block is zero, prove work energy theorem in a time interval of 5 second.
14. Define power. Give its S.I. unit and commercial unit.
15. If a force F is applied on a body and it moves with a velocity V, then what will be power?

**Work, Energy & Power****DPP - 4**

- Kilowatt-hour is :
  - Commercial unit of electric energy
  - Board of trade unit
  - Equivalent to kilovolt ampere-hour
  - All of these
- The purpose of micro-phone is to:
  - Convert electrical energy into sound energy
  - Convert sound energy into electrical energy
  - Convert light energy into electrical energy
  - Convert electrical energy into light energy
- Which of the physical quantity is different from others :
 

(A) Work	(C) Power
(B) Energy	(D) Each belong to same category
- 1 hp is equal to :
 

(A) 0.746 KW	(C) 74.6 KW
(B) 7.46 KW	(D) 746 KW
- Which of the following relation is/are correct for electric power :
 

(A) $P = VI$	(C) $P = I^2R$
(B) $P = V^2/R$	(D) All of these
- Which of the following case violate law of conservation of energy?
  - Vibrations of a simple pendulum
  - Motion of a ball on frictionless ground
  - Motion of a ball on rough ground
  - None of these
- From physics point of view, 'Work' means :
 

(A) effort	(C) achievement
(B) interview	(D) none of these
- A body at rest can have :
 

(A) speed	(C) momentum
(B) velocity	(D) energy
- Work is product of time and :
 

(A) energy	(C) force
(B) power	(D) distance
- Which of the following is not the unit of power ?
 

(A) J/s	(B) Watt	(C) kJ/h	(D) kWh
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- A pump store 200 kg water in a tank located at height 10 metre in 5 minutes. What is the work done by pump, in Joule?
- A car weighing 1000 kg and travelling at 30 m/s stops at a distance of 50 m decelerating uniformly. What is the force exerted by the brakes? What is the work done by the brakes?
- A body is pushed along a road with a force of 500 N through a distance of 90m in 1 minute. Calculate the power used.
- 20 Joules work is done in displacing a body by 4 metre in the direction of the force. What is the value of the force applied in newton?
- A work of 4900 J is done on a load of mass 50 kg to lift it to a certain height. Calculate the height through which the load is lifted?