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Class: IX
Subject: physics
Topic: Work Power Energy
No. of Questions: 20
Duration: 60 Min
Maximum Marks: 60

Q. 1 Work done = Force x _____

1. distance

2. acceleration

3. velocity

4. speed

Answer: 1

Exp: Work done = Force X displacement

Q. 2 1 joule = 1 _____

1. N m^2

2. $kg\,m/s^2$

3. N m

4. N^2 m^2

Answer: 3

Exp: Use S.I unit

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Q. 3 Which form of energy does the flowing water possess?

1. gravitational energy

2. potential energy

3. electrical energy

4. kinetic energy

Answer: 4

Exp: Kinetic energy is associated with motion

Q.4 A body of mass 2 kg is dropped from a height of 1m. Its kinetic energy as it touches the ground is _____

1. 19.6 N

2. 19.6 J

3. 19.6 kg

4. 19.6 m

Answer: 2

Exp: Kinetic energy = Potential energy

Q.5 The unit of power is _____

1. watt per second

2. joule

3. kilojoule

4. joule per second

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Answer: 4

Q. 6 3730 watts = _____h.p.

1. 5

2. 2

3. 746

4. 6

Answer: 1

Exp: 1 HP = 746 Watt

Q. 7 A coolie carries a load of 500 N to a distance of 100 m. The work done by him is

1. 5 N

2. 50,000 Nm

3. 0

4. 1/5 N

Answer: 3

Exp: Angle between force and displacement is zero.

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Q.8 The P.E. of a body at a certain height is 200 J. The kinetic energy possessed by it when it just touches the surface of the earth is

1. > P.E.

2. < P.E.

3. = P.E.

4. cannot be known

Answer: 1

Exp: Kinetic energy > Potential energy

Q.9 Power is a measure of the _____

1. rate of change of momentum

2. force which produces motion

3. change of energy

4. rate of change of energy

Answer: 4

Exp: Power is rate of doing work done which is equal to rate of change of energy

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Q.10 Two objects of masses 1 x 10^{-3} kg and 4 x 10^{-3} kg have equal momentum. What is the ratio of their kinetic energies?

1. 4:1

2. 2:1

3. 16:1

4. $\sqrt{2}:1$

Answer: 1

Exp: Kinetic energy would be inversely proportional to the mass of the object

Q. 11 A 40 newton object is released from a height of 10 m. Just before it hits the ground, its kinetic energy, in joules is _____

1. 400

2. 3920

3. 2800

4. 4000

Answer: 1

Exp: W = m g h = F. h

Q.12 If the speed of an object is doubled then its kinetic energy is _____

1. doubled

2. quadrupled

3. halved

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4. tripled

Answer: 2

Exp: K.E = ½ mv^2

Q.13 1.5 kW = _____ watts

1. 1500

2. 150

3. 15000

4. 15

Answer: 1

Q.14 A man of mass 50 kg jumps to a height of 1 m. His potential energy at the highest point is (g = 10 m/s^2)

1. 50 J

2. 60 J

3. 500 J

4. 600 J

Answer: 3

Exp: P.E = m g h

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Q.15 The type of energy possessed by a simple pendulum, when it is at the mean position is

1. kinetic energy

2. potential energy

3. potential energy + kinetic energy

4. sound energy

Answer: 1

Exp: At mean position, kinetic energy would be maximum.

Q.16 An iron sphere of mass 30 kg has the same diameter as an aluminum sphere whose mass is 10.5 kg. The spheres are dropped simultaneously from a cliff. When they are 10 m from the ground, they have the same _____.

1. acceleration

2. momentum

3. potential energy

4. kinetic energy

Answer: 1

Exp: Acceleration due to gravity would remain same at same height only.

Q.17 A 1 kg mass has a kinetic energy of 1 joule when its speed is

1. 0.45 m/s

2. 1 m/s

3. 1.4 m/s

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4. 4.4 m/s

Answer: 3

Exp: K.E. = ½ m v^2

Q.18 If air resistance is negligible, the sum total of potential and kinetic energies of a freely falling body _____

1. increases

2. decreases

3. becomes zero

4. remains the same

Answer: 4

Q.19 Name the physical quantity which is equal to the product of force and velocity.

1. work

2. energy

3. power

4. acceleration

Answer: 3

Exp: Power = Force x Velocity

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Q.20 An object of mass 1 kg has potential energy of 1 joule relative to the ground when it is at a height of _____.

1. 0.102 m

2. 1 m

3. 9.8 m

4. 32 m

Answer: 1

Exp: P.E. = m g h