MULTIPLE CHOICE QUESTIONS (MCQs)

(1) Work is said to be done when a body is moved through certain distance by the action of:

* Energy
* Force
* Power
* Momentum

(2) When a body is moved through a certain displacement $\vec{d}$ by a force $\vec{F}$, then the work done is:

* $\vec{F} + \vec{d}$
* $\vec{F} \times \vec{d}$
* $\vec{F} \cdot \vec{d}$
* $\vec{F} + \vec{d}/2$

(3) The S.I unit of work is:

* Erg
* Watt
* Foot-Pound
* Joule

(4) The dimensions of work are:

* ML^2T^2
* MLT
* MLT^{-1}
* ML^2T^{-2}

(5) The amount of work is maximum when the angle between the direction of the force and displacement.

* 90°
* 180°
* 60°
* 0°

(6) In case of the negative work the angle between the force and the displacement is:

* 0°
* 90°
* 180°
* 45°

(7) When the direction of force is opposite to the direction of displacement, then the work done will be:

* Positive
* Negative
* Zero
* None of these

(8) The work done by the centripetal force is always:

* Positive
* Zero
* Negative
* Maximum

(9) The work done by the centripetal force $\vec{F}$ on a body moving in a circle is zero because:

* The body moves parallel to $\vec{F}$
* The body moves opposite to F
* The body moves at right angle $\vec{F}$
* The centripetal and centrifugal force balance each other

(10) Work has the dimensions as that of:

* Torque
* Angular momentum
* Linear momentum
* Power

(11) Electron volt is a unit of:

* Power
* Voltage
* Energy
* Chare

(12) If $\vec{F} = 4\hat{i} - 2\hat{j}$ and $\vec{d} = 3\hat{i} + 4\hat{j}$, the work done will be:

* 4 Joules
* 8 Joules
* 2 Joules
* 12 Joules

(13) If a body of mass of 2kg is raised vertically through 2m, then the work done will be:

* 38.2J
* 392.1J
* 39.2J
* 40J

(14) The Work done along closed path in a conservative field is:

* Maximum
* Negative
* Zero
* Positive

(15) A conservative field is one in which:

* Work is independent of the path
* Work depends on the path
* Linear momentum is conserved
* Angular momentum is conserved

(16) A field in which the work done in moving a body along a closed path is zero, is called:

* Electric field
* Magnetic field
* Gravitational field
* Conservative field

(17) The rate of doing work is called:

* Energy
* Force
* Power
* Inertia

(18) Power is defined as:

* Work x time
* $\frac{\text{Work}}{\text{Time}}$
* $\frac{\text{Work}}{\text{Distance}}$
* Work x Distance

(19) The dot product of force and velocity is:

* Work
* Power
* Energy
* Momentum

(20) Power is a scalar quantity because:

* It contain two vector quantities as $\vec{F} \cdot \vec{V}$
* It contain two vector quantities as $\vec{F} \times \vec{V}$
* It is the rate of change of momentum
* None of these

(21) The average power and instantaneous power become equal if work is done at:

* Any rate
* At variable rate
* At uniform rate
* At high rate

(22) The S.I unit of power is:

* Joule/Sec
* Joule.Sec
* Horse Power
* Kilowatt Hour

(23) The unit of Power in British Engineering system is:

* Horse Power
* Watt
* Kilowatt
* Joule

(24) Power is equal to:

* $\frac{\vec{F} \times \vec{d}}{t}$
* $\frac{\vec{F} \cdot \vec{V}}{t}$
* $\frac{\vec{F} \cdot \vec{d}}{t}$
* $\frac{\vec{F} \times \vec{V}}{t}$

(25) The dimension of power are:

* ML^2T^{-3}
* $M^2L^2T^{-3}$
* ML^2T^2
* $M^2L^2T^{-1}$

(26) Kilo watt hour is the unit of:

* Force
* Power
* Energy
* Velocity

(27) One horse power is equal to:

* 400 watt
* 580 watt
* 746 watt
* 70 watt

(28) A jet plane engine develop a thrust (forward force) of 2000N when flying at 200m/s. The power of the engine is:

* 4×10^5 hP
* 4×10^5 KW
* 4×10^5 W
* 4×10^5 MW

(29) Which of the following is not a unit of power:

* Kilo watt
* Kilo watt hour
* Horse power
* ft. lb/Sec

(30) 25000 watt power is equal to:

* 2.5 K watt
* 25 JP
* 50 hP
* 33.5 hP

(31) One mega watt-hour is equal to:

* 36×10^6J
* 36×10^{12}J
* 36×10^9J
* 36×10^8J

(32) One kilo watt-hour is equal to:

* 3.6×10^6J
* 3.3×10^9J
* 3.9×10^6J
* 3.6×10^9J

(33) Ability to do work is called:

* Power
* Energy
* Torque
* Force

(34) Energy stored in the spring of watch is called:

* Potential Energy
* Kinetic Energy
* Elastic Potential Energy
* Nuclear Energy

(35) Kinetic energy is a quantity which is:

* Scalar
* Vector
* Both scalar and vector
* None of these

(36) If velocity is doubled then:

* Momentum increases 4 times and K·E increases 3 times
* Momentum and K·E remains same
* Momentum increases 2 times and K·E increases 3 times
* Momentum increases 2 times and K·E increase 4 times

(37) When the speed of a moving body is doubled:
* Its K.E is doubled
* Its acceleration is doubled
* Its P.E is doubled
* Its Momentum is doubled

(38) A body of mass 3kg lies on the surface of the table 2m high. It is moved on the surface by 4m. The change in P.E will be:
* Zero
* 9.8J
* 19.6J
* 329.4J

(39) If mass and speed both double, the kinetic energy of a moving body:
* Increases 4 times
* Increases 6 times
* Increases 8 times
* Remains the same

(40) What is the kinetic energy of body 5kg and is its momentum 15kg m/s:
* 30.0J
* 55.0J
* 50.0J
* 22.5J

(41) The dimensions of the kinetic energy are:
* $\frac{1}{2}ML^2T^{-2}$
* ML^2T^{-2}
* $\frac{1}{2}ML^2T^2$
* MLT^{-1}

(42) The absolute P.E of a body of mass "M" in the earth gravitational field is given by:
* $\frac{-GMeM}{r}$
* $\frac{-GMeM}{r^2}$
* $\frac{GMeM}{r}$
* $\frac{GMeM}{Re^2}$

(43) According to the work-energy equation work done one body is equal to:
* The difference of its final and initial momentum
* The difference of its final and initial P.E
* The difference of its final and initial K.E
* The difference of its velocities

(44) The tidal energy is due to the gravitational pull of:
* Sun
* Moon
* Mars
* Planet

(45) The fossil fuels are:
* Coal, Petroleum and natural gas
* Wood
* Plastic and seed oils
* Cotton

(46) A gas filled balloon possesses:
* Kinetic energy
* Energy
* Potential energy
* None of these

(47) When a body moves vertically upward, the work done will be: **(2010)**
* Positive
* Negative
* Zero
* Maximum

(48) A weigh lifter consumer 500J of energy to lift load in seconds the used is:
* 125 watts
* 250 watts
* 500 watts
* 1000 watts

ANSWER KEY

(1) Force	(2) $\vec{F} \cdot \vec{d}$
(3) Joule	(4) ML^2T^{-2}
(5) 0°	(6) 180°
(7) Negative	(8) Zero
(9) The body moves at right angle F	(10) Torque
(11) Energy	(12) 4 Joules
(13) 39.2 J	(14) Zero
(15) Work is independent of the path	(16) Conservative field
(17) Power	(18) $\frac{\text{Work}}{\text{Time}}$
(19) Power	(20) It contain two vector quantities as $\vec{F} \cdot \vec{V}$
(21) At uniform rate	(22) Joule/Sec
(23) Horse power	(24) $\frac{\vec{F} \cdot \vec{d}}{t}$
(25) ML^2T^{-3}	(26) Energy
(27) 746 watt	(28) 4×10^5 W
(29) Kilo watt hour	(30) 33.5hP
(31) 3.6×10^9 J	(32) 3.6×10^6 J
(33) Energy	(34) Potential Energy
(35) Scalar	(36) Momentum increases 2 times and K·E increase 4 times
(37) Its Momentum is doubled	(38) Zero
(39) Increases 8 times	(40) 22.5J
(41) ML^2T^{-2}	(42) $\frac{-GMeM}{r}$
(43) The difference of its final and initial K.E	(44) Moon
(45) Coal, Petroleum and natural gas	(46) Potential energy
(47) Negative	(48) 250 watts