

Work, Power & Energy

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1. Work is said to be done when a body is moved or stopped through certain distance by the action of: B
 a) Energy b) Force
 c) Power d) Momentum
2. When work is done _____ is transferred to the body or taken out of the body: A
 a) Energy b) Force
 c) Power d) Momentum
3. During The process of doing work energy is transferred to the body or taken out of the body in the form of: A
 a) Kinetic energy b) Potential energy
 c) Momentum d) Force
4. Work is a product of: D
 a) Power and time b) Energy and displacement
 c) Force and energy d) Force and distance
5. The magnitude of work done by a force f through a distance d acting at angle θ is given by: C
 a) $fd \sin \theta$ b) $fd \tan \theta$
 c) $fd \cos \theta$ d) $\frac{f}{d} \cos \theta$
6. In the vector form, the work done is: D
 a) $\vec{f} \times \vec{d}$ b) $\vec{d} \times \vec{f}$
 c) $\frac{1}{2} \vec{f} \times \vec{d}$ d) $\vec{f} \cdot \vec{d}$
7. Work done is maximum when force is _____ to displacement: D
 a) Equal b) Perpendicular
 c) Opposite d) Parallel
8. For certain values of F and d , work done is zero when the angle between the force and displacement is: C
 a) 0° b) 30°
 c) 90° d) 180°
9. The magnitude of work is maximum in the opposite direction when the angle θ is equal to: D
 a) 0° b) 45°
 c) 90° d) 180°
10. The units of work are the same as those of: B
 a) Power b) Energy
 c) Force d) Mass
11. The force acting on a body in the gravitational field at any point is equal to its: B
 a) Gravitational mass b) Weight
 c) Acceleration d) Inertia
12. The work done in a gravitational field is independent of: C
 a) Its distance b) Its mass
 c) Its path d) Its potential energy
13. A field is said to be conservative if the work done along a closed path is: A
 a) Zero b) Negative
 c) Positive d) Infinity
14. The rate of doing work is called: B
 a) Energy b) Power
 c) Force d) Inertia
15. Power is defined as: C
 a) Work $\frac{\text{Work}}{\text{Time}}$ d) Work \times distance
16. The SI unit of power is: D
 a) Joule b) Erg
 c) Dyne d) Watt

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17. In the vector form power is expressed as: A
 a) $P = \vec{F} \cdot \vec{V}$ b) $P = \vec{F} \times \vec{V}$
 c) $P = \vec{V} \times \vec{F}$ d) $P = \vec{F} \cdot \vec{d}$
18. One kilowatt-hour is a unit of: B
 a) Power b) Energy
 c) Time d) Velocity
19. One kilowatt-hour is equal to _____ joules: D
 a) 3.6×10^9 b) 6.3×10^9
 c) 3.9×10^6 d) 3.6×10^6
20. The formula for the kinetic energy is given by: B
 a) $K.E = m^2V^2$ b) $K.E = \frac{1}{2} mV^2$
 c) $K.E = mV$ d) $K.E = \frac{1}{2} m^2V$
21. The potential energy of a body of mass m placed at height of h is: C
 a) $\frac{1}{2} mg^2$ b) $\frac{1}{2} mgh$
 c) mgh d) $2 mgh$
22. The work done in lifting a body to a higher level is stored in it as: D
 a) Power b) Moment of inertia
 c) Kinetic energy d) Potential energy
23. One horse-power is equal to _____ watts: C
 a) 647 b) 446
 c) 746 d) 646
24. Ability to do work is called: B
 a) Power b) Energy
 c) Torque d) Force
25. The potential energy of a body is defined as the energy it possesses due to its _____: D
 a) Mass b) Weight
 c) Velocity d) Position
26. According to the work-energy principle work done on body is equal to: C
 a) The difference of its final and initial momentum
 b) The difference of its final and initial potential energies
 c) The difference of its final and initial kinetic energies
 d) The difference of its velocities
27. The work done in moving a body from the surface of the earth to a point at infinite distance is called C
 its:
 a) Kinetic energy b) Absolute work
 c) Absolute potential energy d) None of the above
28. The absolute potential energy of a body of mass m at the surface of the earth is given by: B
 a) $\frac{GmM_e}{R_e^2}$ b) $\frac{GmM_e}{R_e}$
 c) $\frac{GmM_e}{R_e^3}$ d) $\frac{Gmg}{R_eM_e}$
29. The escape velocity at the surface of the earth can be found by the formula: A
 a) $V = \sqrt{2gR_e}$ b) $V = \sqrt{gR_e}$
 c) $V = \frac{1}{2} \sqrt{gR_e}$ d) $V = 2g\sqrt{R_e}$
30. The value of the escape velocity on the surface of the earth is: C
 a) 1100 m sec^{-1} b) 11 m sec^{-1}
 c) 11000 m sec^{-1} d) $11 \times 10^6 \text{ m sec}^{-1}$

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31. If a body falls from a height, the relation between its kinetic and potential energies is: A
 a) Gain in K.E = Loss in P.E - Work done against friction
 b) Gain in P.E = Loss in K.E + Work done against friction
 c) Loss in K.E = Gain in P.E + Work done against friction
 d) Loss in P.E = Gain in K.E - Work done against friction
32. When a falling body hits the earth, its kinetic energy changes to: C
 a) Potential energy b) Chemical energy
 c) Sound & heat d) Mechanical energy
33. The ultimate source of almost all the energy that we use is: C
 a) Water b) Air
 c) The sun d) Petroleum
34. Geothermal energy is produced: B
 a) When sun rays strike the earth b) In the interior of the earth
 c) When ocean waves strike the rocks d) Due to earth's magnetism
35. The tidal energy is produced due to rotation of the earth relative to: A
 a) Moon b) Sun
 c) Oceans d) Water
36. Solar energy is the energy of: D
 a) Fire b) Earth's interior
 c) Oceans d) Sun
37. Fossil fuels were formed by the animals and plants buried in earth millions of years ago by the action of: A
 a) Temperature and pressure b) Sun's rays
 c) Water and soil d) Bacteria and virus
38. Fusion is a process in which nuclei of lighter atoms: B
 a) Break apart b) Join together
 c) Collide with each other d) Repel each other
39. A solar cell converts sun's energy into: B
 a) Heat energy b) Electric energy
 c) Light d) Sound
40. When a force is applied on a body and it covers some distance, then it is said that _____ is done: A
 a) Work b) Power
 c) Velocity d) Distance
41. Work is equal to the product of force and _____: B
 a) Velocity b) Distance
 c) Acceleration d) Momentum
42. If a force of 30N is applied on a body and it covers distance of 4m in the direction of force then the amount of work done is _____: D
 a) 130 joule b) 20 joule
 c) 40 joule d) 120 joule
43. If we write, $W = \vec{F} \cdot \vec{d}$, then we can also say that _____: B
 a) Work is a vector quantity b) Work is a scalar quantity
 c) Work is correct quantity d) None of these
44. Work is a _____ product of force and displacement: A
 a) Dot b) Cross
 c) Lower d) Upward
45. If the angle between force and displacement is 180° , then work is _____: B
 a) Positive b) Negative
 c) Displacement d) None of these
46. The force of gravitation experienced by any other body is _____ to its weight: B
 a) Along with b) Equal
 c) Negative d) Direction
47. The work done between two points in the _____ field is independent of path followed: A
 a) Gravitational b) Closed
 c) Magnetic d) Electrostatic

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48. The work done along a closed path in the gravitational field is _____: C
 a) Four b) Two
 c) Zero d) Nine
49. A field in which the total work done in moving a body along a closed path is zero, is called _____ field: A
 a) Conservative b) Electrostatic
 c) Gravitational d) None of these
50. Magnetic field is an example of _____ field: A
 a) Conservative b) Mass area
 c) Atomic d) Electromagnetic
51. The total work done per unit time is called: A
 a) Power b) Net force
 c) Internal force d) None of these
52. The formula for power is: B
 a) $W = \frac{P}{t}$ b) $P = \frac{W}{t}$
 c) $t = \frac{W}{P}$ d) $t = \frac{P}{W}$
54. If the rate of doing work is not uniform, then we define power at any instant is called _____ power: B
 a) Huge b) Instantaneous
 c) Average d) None of these
55. The formula for instantaneous power is _____: B
 a) $\frac{W}{t}$ b) $\lim_{\Delta t \rightarrow 0} \frac{\Delta W}{\Delta t}$
 c) $\lim_{\Delta t \rightarrow 1} \frac{\Delta W}{\Delta t}$ d) None of these
56. The average and _____ power becomes equal if the work is done at a uniform rate: A
 a) Instantaneous b) Total
 c) Divide d) None of these
57. Power is a _____ quantity: C
 a) Vector b) Horse-power
 c) Scalar d) None of these
58. The unit of power is: B
 a) Kilogram b) Watt
 c) Meter d) None of these
59. Horse – power is the unit of power in British _____ system: B
 a) Velocity b) Engineering
 c) Acceleration d) None of these
60. 1 horse power = _____: C
 a) 440 watt b) 330 watt
 c) 746 watt d) 701 watt
61. The ability of a body to do work is called its _____: A
 a) Energy b) Kinetic energy
 c) Horse Power d) None of these
62. A bullet fired from a gun has _____: B
 a) P.E. b) K.E.
 c) Total energy d) None of these
63. The formula for K.E. = _____: C
 a) $\frac{1}{4} mv^2$ b) $\frac{1}{3} mv^2$
 c) $\frac{1}{2} mv^2$ d) $\frac{1}{5} mv^2$

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64. The unit of K.E. is _____: A
 a) Joule b) Newton
 c) Kilogram d) Meter
65. The total work done on a body is equal to the change in the _____ energy of the body: C
 a) Joule b) Increase in K.E.
 c) Kinetic d) Work
66. The energy due to the height of a body is called _____: A
 a) Potential energy b) Kinetic energy
 c) Applied energy d) None of these
67. Find the K.E. of a body whose mass and velocity are 2 kg and 2 m/s respectively: B
 a) 3 joule b) 4 joule
 c) 5 joule d) None of these
68. Find the K.E. of a body whose mass is 8 kg and velocity is 3 m/s: D
 a) 31 Joule b) 63 Joule
 c) 13 Joule d) 36 Joule
69. If the mass of a body is 4 Kg and it is 10 m high, then find the P.E. of the body C
 a) 108 Joule b) 392 Joule
 c) 801 Joule d) 832 Joule
70. Gravitational P.E. is defined as the work done in moving a body from one point to another against the _____ field: A
 a) Gravitational b) Kinetic
 c) Equal d) None of these
71. Gravitational P.E. is a _____ quantity: B
 a) Positive b) Negative
 c) Equal d) Distance
72. The work done in moving a body from earth to _____ against the gravitational force is called absolute P.E.: A
 a) Infinity b) Moon
 c) Go d) Lower
73. The formula for absolute P.E. = _____: B
 a) Infinity b) $\frac{GMm}{R}$
 c) $\frac{GMr}{R^2}$ d) None of these
74. The initial velocity with which a body is projected from the surface of earth in order to go just out of the earth's _____ field, is called escape velocity: A
 a) Gravitational b) Kinetic
 c) Projected d) Velocity
75. The escape velocity at the surface of the earth can be found by the formula _____: A
 a) $V = \sqrt{2gR_e}$ b) $V = \sqrt{2gR_e^2}$
 c) $V = \sqrt{3gR_e}$ d) None of these
76. Fusion is a process in which nuclei of lighter atoms _____; B
 a) Moon b) Join together
 c) Sound d) Light
77. Work done under a force is negative if the force and displacement are: C
 a) At right angle to each other b) In the same direction
 c) In opposite direction d) None of these
78. Work done will be positive (maximum) if the angle between force and displacement is: A
 a) 0° b) 45°
 c) 90° d) 180°
79. Work done against friction is the example of: B
 a) Positive work b) Negative work
 c) Zero work d) None of the above

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80. The force which can do no work on the body on which it acts is: D
 a) Frictional force b) Elastic force
 c) Gravitational force d) Centripetal force
81. When a body is lifted through a height h , the work done on the body appears in the form of: B
 a) Kinetic energy b) Potential energy
 c) Electrical energy d) Work
82. The energy stored in the spring of a watch is: D
 a) Kinetic energy b) Electrical energy
 c) Magnetic energy d) Elastic potential energy
83. The scalar product of force and velocity is: A
 a) Power b) Energy
 c) Work d) Impulse
84. In an inertial frame of reference, the weight of a body on earth is equal to the force: B
 a) Exerted by the sun on body b) Of gravity experienced by the body
 c) Of friction experienced by the body d) None of the above
85. Power is defined as: C
 a) Capacity to do work b) Ability to do work
 c) Rate of doing work d) Habit of doing work
86. Which one of the following defined the power: A
 a) $\vec{F} \cdot \vec{v}$ b) $\vec{F} \cdot \vec{d}$
 c) $\vec{P} \cdot \vec{d}$ d) $\vec{F} \cdot \vec{d}$
87. If work is done at the rate of 1000 Joules per second, then the power of machine is: B
 a) One watt b) One kilo-watt
 c) Half watt d) One megawatt
88. The unit of power in British Engineering system is: D
 a) Watt b) Kilo-Watt
 c) Joule d) Horse Power
89. Electron volt is the unit of: B
 a) Power b) Energy
 c) Work d) Momentum
90. The kinetic energy is the energy possessed by a body by virtue of _____: B
 a) Its position b) Its motion
 c) Its elasticity d) It force
91. Which one of the following quantities does not have the same units? A
 a) Power b) Potential energy
 c) Thermal energy d) Work
92. The kinetic energy of a body depends upon: C
 a) Force and acceleration of the body b) Density and weight of the body
 c) Mass and velocity of the body d) Mass and density of the body
93. Which quantity is not a scalar quantity? D
 a) Work b) Power
 c) Kinetic energy d) Torque
94. The kinetic energy of a 100 gm bullet moving at a speed of 100 m/s is: B
 a) 2500 J b) 500 J
 c) 1250 J d) 250 J
96. The energy of a meteorite as it enters into earth's atmosphere, is converted into: C
 a) Kinetic energy b) Mechanical energy
 c) Heat energy d) Nuclear energy
98. Watt is the unit of power, kilowatt-hour is the unit of: D
 a) Power b) Work
 c) Momentum d) Energy
99. Wind blows from areas of: A
 a) High pressure to areas of low pressure b) Low pressure to areas of high pressure
 c) Low temperature to areas of high temperature d) None of these

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100. Which of the following is the biggest unit of energy? C
 a) joule b) Watt-hour
 c) Kilo watt-hour d) Erg
102. When two protons are brought closer: B
 a) The P.E. between them decreases b) The P.E. between them increases
 c) The P.E. between them remains unchanged d) Their K.E. increases
105. To increase the span of the jump, a long jumper should jump: C
 a) At an angle of 90° b) At an angle of 60°
 c) At an angle of 45° d) As high as possible
106. When the mass and speed of a body are doubled, its kinetic energy becomes: D
 a) 2 times b) 4 times
 c) 6 times d) 8 times
107. A gas filled balloon possesses: B
 a) Kinetic energy b) Potential energy
 c) Both kinetic and potential energy d) None of these
108. A stone tied to the end of a 10 cm string is whirled in a horizontal circle. If centripetal acceleration is 10 m/s^2 , its linear speed in m/s is: B
 a) 10 b) 1
 c) 100 d) 0.1
109. What is the P.E. lost by a stone of mass 10 Kg when it is dropped from a 10 m high building: D
 a) Zero b) 98 joules
 c) 100 joules d) 980 joules
110. Which of the following is not a fundamental unit? B
 a) Candela b) Area
 c) Kelvin d) Ampere
111. Which of the following quantities is dimensionless? C
 a) Volume b) Momentum
 c) Angle d) Density
113. Angular momentum of a body about a fixed point is conserved if its velocity is: A
 a) Constant b) Variable
 c) Directly proportional d) None of these
114. The escape velocity of a body depends on: B
 a) Mass of the body b) Mass of the planet
 c) Density of the planet d) None of these
115. When a torque acting on a system is zero, which of the following will be constant? B
 a) Linear momentum b) Angular momentum
 c) Impulse d) Force
116. A paratrooper of mass 80 kg descends vertically at a constant velocity of 3 m/s. Taking the acceleration of free fall as 10 m/s^2 , what is the net force acting on him: B
 a) 800 N b) Zero
 c) 240 N d) 360 N
117. A mass is projected vertically upwards with a given velocity. Neglecting air resistance, which one of the following statements is correct? B
 a) The momentum of the mass is conserved throughout the motion
 b) The total energy of the mass is conserved throughout the motion
 c) The Kinetic energy of the mass is maximum at the maximum height
 d) The potential energy increases uniformly with time
118. A positron of mass 10^{-30} Kg (a light particle) is moving with a speed V . It makes a head-on elastic collision with a stationary proton of mass 10^{-27} Kg (a heavy particle). Which one of the following correctly describes the outcome of the collision? C
 a) The positron comes to rest and the proton moves on with speed V
 b) The positron rebounds with speed V and the proton moves on with speed V
 c) The positron rebounds with speed V and the proton moves on at a speed very much less than V (almost at rest)
 d) The positron rebounds at speed $V/2$ and the proton moves on at speed $V/2$

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135. The formula of kinetic energy is: D
 a) $\frac{2m^2}{v^2}$ b) $\frac{v^2}{2m}$
 c) $2mv^2$ d) $\frac{1}{2}mv^2$
136. When the speed of moving body is doubled: A
 a) Its momentum is doubled b) Its kinetic energy is doubled
 c) Its acceleration is doubled d) Its potential energy is doubled
137. The energy is stored in a dam is: C
 a) Nuclear energy b) Kinetic energy
 c) Potential energy d) Heat energy
139. The fossil fuel are mainly: D
 a) Coal b) Petroleum
 c) Natural gas d) All of these
140. Gas filled balloon possesses: D
 a) Energy b) Kinetic energy
 c) Mechanical energy d) Potential energy
142. The escape velocity from the earth's surface in Km sec^{-1} is: D
 a) 4.2 b) 7.2
 c) 9.2 d) 11.2
143. One erg is equal to: C
 a) 10^7 Joule b) 10^5 Joule
 c) 10^{-7} Joule d) 10^{-5} Joule
144. A body moves a distance of 10m along a straight line under the action of force of 5N and work is 25J. The angle which the force makes with the direction of motion will be: B
 a) 30° b) 60°
 c) 90° d) 120°
145. Kinetic energy of a body of mass m and velocity V is a: B
 a) Vector as it contains V b) Scalar as it contains m
 c) Scalar as it can be written as $\frac{1}{2}m(v \cdot v)$ d) Vector as it can be written as $\frac{1}{2}m(v \times v)$
146. The work done will be negative if the angle between force F and displacement d is: D
 a) 30° b) 60°
 c) 90° d) 180°
147. if a force of one Newton acts on a body and displaces it through a distance of one meter in the direction of force, then the work done will be: D
 a) Dyne b) Erg
 c) Watt d) Joule
148. If a body of weight 'W' is lifted through a height 'h' then the work done will be: B
 a) -wh b) wh
 c) $wh \sin \theta$ d) Zero
149. If a body of mass of 2 kg is raised vertically through 2m, then the work done will be: C
 a) 38.2 J b) 392.1 J
 c) 39.2 J d) 40 J
150. Power is also defined as the dot product of: C
 a) Force and mass b) Force and displacement
 c) Force and velocity d) Force and time
151. Kinetic energy is a: A
 a) Scalar quantity b) Vector quantity
 c) Conservative quantity d) Fundamental quantity
152. Kilowatt hour is the unit of: B
 a) Power b) energy
 c) Force d) Momentum

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153. If velocity is doubled then: D
 a) Momentum increases 4 times and K.E. increases 2 times
 b) Momentum and K.E. remains same
 c) Momentum increases 2 times and K.E. increases 3 times
 d) Momentum increases 2 times and K.E. increases 4 times
154. Absolute potential energy of the body at the earth's surface is equal to: B
 a) GM_e/R_e b) $GM_e m/R_e$
 c) GmM_e/R_e^2 d) $GM_e m/2R_e^2$
155. A force of 8N acting on a body of mass 5kg displaces it through 2m along its direction. The work done is: C
 a) Zero b) 8 J
 c) 16 J d) 24 J
156. One mega watt-hour is equal to: D
 a) 36×10^6 J b) 36×10^{12} J
 c) 36×10^9 J d) 36×10^8 J
157. A body of mass 3 kg lies on the surface of the table 2m high. It is moved on the surface by 4m. The change in P.E. will be: A
 a) Zero b) 9.8 J
 c) 19.6 J d) 329.4 J
158. Work has the dimensions as that of: A
 a) Torque b) Angular momentum
 c) Linear momentum d) Power
159. If an athlete uses 500 Joules of energy to lift a load in 2 seconds his muscular power is: B
 a) 125 watt b) 250 watt
 c) 500 watt d) 1000 watt
160. The consumption of energy by a 60 watt bulb in 2 sec is: A
 a) 120 J b) 60 J
 c) 30 J d) 0.2 J
161. Scalar product of force and displacement is called: C
 a) Power b) Watt
 c) Work d) Momentum
162. The work done by the machine is called: B
 a) Input b) Output
 c) Force d) Efficiency
163. Which of the following is correct? D
 a) Watt and watt-hour represent the same quantity
 b) Watt represents energy and watt-hour represents force
 c) Watt represents force and watt-hour represents energy
 d) Watt represent power and watt-hour represents energy
164. The fossil fuels are: A
 a) Coal, petroleum and natural gas b) Wood
 c) Plastic and seed oils d) Cotton
165. The reaction which takes place in Nuclear Reactor is: C
 a) Chemical reaction b) Fusion reaction
 c) Fission reaction d) Mechanical reaction
166. The K.E. required by a mass m after covering a fixed distance S from rest under a constant force is directly proportional to: A
 a) m b) \sqrt{m}
 c) $\frac{1}{\sqrt{m}}$ d) m^2
168. What is the P.E. lost by a man of mass 50 kg if he jumps from a 10 m high building? C
 a) 980 J b) 5000 J
 c) 4900 J d) 98 J

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201. A cricket ball and a hollow plastic ball are dropped from a certain height in a vacuum chamber, when they have fallen half way down they have the same: D
 a) K.E b) P.E
 c) Rest energy d) Speed
202. The sum of kinetic and potential energies of a falling body: A
 a) Is constant at all points b) Is maximum in the beginning
 c) Is minimum in the beginning d) Is maximum in the middle of the path
203. Potential energy is increased when the work is done: B
 a) Along the field b) Against the field
 c) By the field d) All of the above in different cases
204. If the velocity of the moving particle is doubled the factor by which the K.E. increased is: A
 a) 4 b) 1/2
 c) 2 d) 6
205. The heat energy is transferred to a body, it is converted into: A
 a) Internal energy of the body b) Work done by the body
 c) Mass of the molecules d) Potential energy of the body
206. The potential energy of the proton-electron system depends on: C
 a) Velocity of electron b) Mass of electron
 c) Radius of the orbits d) Frequency of vibration of electron
208. Of the following, the one which possesses K.E. is: C
 a) A stretched string b) A fire work
 c) A bullet in flight d) The air in a bicycle tyre
209. Fossil fuels were formed by the animals and plants buried in earth millions of years ago by the action of: A
 a) Temperature and pressure b) Sun's rays
 c) Water and soil d) Bacteria and virus
210. Which of the following case doesn't possess potential energy: D
 a) Bob of pendulum at end position b) Compressed spring
 c) Stretched wire d) Train moving on a level track
211. Energy can neither be created nor be destroyed, but it can be changed from one form to another form. This is the statement: C
 a) First law of thermodynamics b) Second law of thermodynamics
 c) Law of conservation of energy d) Hess's law
212. Energy is: B
 a) Work divided by time b) The ability to do work
 c) Measurable in Horse power d) Force divided by distance
213. The average transnational K.E is directly proportional to the: A
 a) Absolute temperature b) Heat
 c) Resistance d) Specific heat
214. Electrical energy can be converted into mechanical energy by using a/an: A
 a) Electrical motor b) Electrical generator
 c) Transformer d) Transistor
215. Mechanical energy is: A
 a) Always conserved b) Never conserved
 c) A constant quantity d) Conserved if there are no frictional or dissipative effects
216. Which example best illustrate the conversion of electrical energy to chemical energy? B
 a) Melting a fuse b) Charging an accumulator
 c) Starting a car d) Generating hydro-electric power
217. "The energy transferred by heating plus the energy supplied by doing mechanical work on the gas is equal to the increase in internal energy". It is the statement of: C
 a) Third law of thermodynamics b) First law of thermodynamics
 c) Joule's law d) Kelvin statement

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218. In micro phone, transformation of energy takes place from: A
 a) Sound to electrical energy b) Electrical to sound energy
 c) Sound to mechanical energy d) Mechanical to sound energy
219. The work done in lifting 30 kg of brick to a height of 20 m is: C
 a) 2800 J b) 600 J
 c) 5880 J d) 2910 J
220. How much work will be done against gravitational forces when a 400lbs. High diver climbs a tower 100 ft. tall? B
 a) 4000 ft.lbs b) 40000 ft.lbs
 c) 4 ft.lbs d) 1/4 ft.lbs
221. The work done in moving an object along a vector $r = 3i+2j-5k$. If the applied force is $F = 2i-j-k$: D
 a) $10j$ b) $6i-2j-5k$
 c) $0j$ d) $9j$
222. A lift of mass 200 kg moves upward with a uniform velocity of 4m/s. if the efficiency of motor is 70% the input power of the motor is: D
 a) 11.2 KW b) 16.7 KW
 c) 7.84 KW d) None of above
224. A crane lifts a load of 6000N through a vertical distance of 15m in 30 sec. What is the average power during this operation? C
 a) 200 W b) 400 W
 c) 3000 W d) 12000 W
225. A crane lifts a load of 6000N through a vertical distance of 15m in 30 sec. What is the P.E. at the highest point of this operation? A
 a) 90000 J b) 200 J
 c) 400 J d) 12000 J
226. A bomb of mass 9 kg explodes into two pieces of mass 3 kg and 6 kg. The velocity of 3 kg mass is 16 m/s. The K.E. of 6 kg mass will be: B
 a) 96 J b) 192 J
 c) 384 J d) None of these
227. An object is acted by a force of 20 N, and at a particular instant, its K.E is 12 J. the object will come to rest after it has traveled a further distance, in m. of: A
 a) $3/5$ b) $5/3$
 c) 4 d) 16
228. A 0.2 kg ball thrown upwards, attained a height of 15m. Find its potential energy at the highest point: A
 ($g = 10m/s^2$)
 a) 30j b) 3j
 c) 300 J d) 0.3j
229. 200J of energy is supplied to a machine which is 40% efficient, the amount of energy lost is: B
 a) 200 J b) 120 J
 c) 80 J d) 160 J
230. The K.E. of a 1000kg car moving at a speed of 80 km/hr, will be: B
 a) 2.47×10^8 J b) 2.47×10^5 J
 c) 24.7×10^7 J d) 24.7×10^3 J
231. A 1kg mass has a potential energy of 1 J, w.r.t. the ground, the height attained by it is: A
 a) 0.1 m b) 0.5 m
 c) 10 m d) 9 m
232. The kinetic energy of a ball of mass 10 g and momentum 100 g cm/sec is: D
 a) 5×10^3 erg b) 5×10^2 erg
 c) 5×10^3 erg d) 5×10^4 erg
233. An engine lifts 1200 kg of weight per second from a mine 20m deep. The power in watts, is given as: C
 a) 6000 b) 600
 c) 24000 d) 2400
234. The space around the earth within which it exerts a force of attraction on other bodies is known as: A
 a) Gravitational field b) Conservative field
 c) Electric field d) Gravitational constant

Work, Power & Energy

236. A boy is pushing a roller, he is doing: A
 a) Positive work b) Negative work
 c) Zero d) Neither positive nor negative work
237. The device which helps in doing work is known as: D
 a) Barometer b) Potentiometer
 c) Worker d) Machine
238. A worker takes two minutes to raise a box from platform to train. Another worker takes 1 minute, the work done: C
 a) By the first is more b) By the first is less
 c) Is same in both cases d) Becomes $\frac{1}{4}$ in the first
239. If the force and displacement vectors are in opposite direction, the work done will be: A
 a) Negative b) Positive
 c) Both negative and positive d) Not depend on force and displacement
240. What are the energy changes in hydroelectric power production: B
 a) Electrical Potential Kinetic b) Potential Kinetic Electrical
 c) Kinetic Potential Kinetic d) Potential Electrical Kinetic
241. In F.P.S the unit of work is: D
 a) Inch - ounce b) Erg
 c) Slug d) Foot – pound
243. A ball is thrown vertically upward, As the ball rises, its total energy (neglecting friction): C
 a) Decreases b) Increases
 c) Remain the same d) None of these
244. When the velocity of a body is doubled its: B
 a) Kinetic energy is doubled b) Kinetic energy is quadrupled
 c) Acceleration is doubled d) None of these
246. After winding, the spring of the watch possesses: A
 a) Potential energy b) Kinetic energy
 c) Both of energies d) Electrical energy
247. When a bullet rises vertically upward, the K.E of the bullet will: A
 a) Decrease b) Increase
 c) Remain the same d) All are wrong
248. Law of conservation of energy states that: C
 a) Energy should be conserved at all cost b) K.E is due to motion of bodies
 c) Energy can neither be created nor be destroyed d) The ability to do work is called energy
249. Which type of energy may be released when atoms regroup: A
 a) Chemical / fuel energy b) Geothermal energy
 c) Nuclear energy d) Solar energy
250. If the velocity of a body is halved, its K.E. is: C
 a) Quadrupled b) Doubled
 c) One – fourth d) Halved
251. The remains of plants, and animals which died million of years ago create: A
 a) Fossil fuel b) Diamond
 c) Urea d) Energy
253. A lorry and car moving with same K.E are brought to rest by application of brakes which provide equal retarding forces. Which of them will come to rest in a shorter distance: C
 a) Lorry b) Car
 c) Both will come to rest after covering equal distance
 d) It depends on their velocities
255. Which of the following is the main source of solar energy: D
 a) Burning hydrogen b) Geothermal energy
 c) Radioactive decay d) Nuclear fusion