Studybeesofficial
EDUCATIONAL PLATFORM
www.studybeesofficial.com

SSC-I NATIONAL BOOK FOUNDATION FBISE

PHYSICS TEST - CHAPTER 6: WORK AND ENERGY

Name:		Roll No.		Section:

Total Time: 2:30 Hour
Time Allowed: 150 Minutes

Total Marks: 150

PAPER OBJECTIVE
SECTION-A (MARKS 150)

NOTE: Section-A is compulsory. All parts of this section are to be answered on these pages and handed over to the center superintendent. Deleting / overwriting is not allowed. Do not use lead pencil. Take g = 9.8 m/s² wherever required.

Q.1 Fill the relevant bubble for each part. All parts carry one mark.

Questions	A	B	C	D	A B C D
1. In physics, work is done when a force:	is applied but nothing moves	is zero	acts but the object stays at rest	moves an object in the direction of the force	○○○●
2. The formula for work done by a force along the displacement is:	W = F/d	W = d/F	W = F × d	W = F + d	○○●○
3. Work is a:	vector quantity	tensor quantity	scalar quantity	unitless quantity	○○●○
4. The SI unit of work is the:	watt	newton	joule	pascal	○○●○
5. One joule is equal to:	1 N/m	1 N m	1 N s	1 kg m	○●○○
6. A man holding a heavy book without moving does:	positive work	negative work	no work	infinite work	○○●○
7. The work done when the displacement is zero is:	maximum	negative	zero	infinite	○○●○
8. The work done by a 100 N force through 5 m (along the force) is:	20 J	105 J	50 J	500 J	○○○●
9. A force of 40 N moves a body 3 m in its own direction. The work done is:	43 J	13.3 J	12 J	120 J	○○○●
10. The work done by a 250 N force through 0.4 m is:	625 J	10 J	100 J	1000 J	○○●○
11. The force needed to do 600 J of work over 12 m is:	7200 N	72 N	5 N	50 N	○○○●
12. The distance moved when a 60 N force does 300 J of work is:	18 000 m	0.2 m	50 m	5 m	○○○●
13. The work done by a force of 1 N through a distance of 1 m is:	10 J	0.1 J	1 W	1 J	○○○●
14. 1 kJ is equal to:	100 J	1000 J	10 J	10^6 J	○●○○

Follow Studybeesofficial on Instagram, YouTube Channel & WhatsApp Channel — Link in Bio

Questions	A	B	C	D	A B C D
15. When work is done on an object, energy is:	destroyed	created from nothing	transferred to it	stored without change	○○●○
16. A child pushes a wall with 50 N but the wall does not move. The work done is:	50 J	0 J	500 J	infinite	○●○○
17. A weightlifter holds a 100 kg barbell above his head for 10 s. The work done on the barbell in this time is:	9800 J	zero	98 J	980 J	○●○○
18. The work done by gravity on a satellite in a circular orbit is:	positive	negative	zero	infinite	○○●○
19. Work done is maximum when force and displacement are:	perpendicular	opposite	in the same direction	unrelated	○○●○
20. The work done when a force is perpendicular to the displacement is:	zero	maximum	negative	doubled	●○○○
21. When a bag is carried horizontally at constant speed, the work done by the vertical lifting force is:	positive	negative	maximum	zero	○○○●
22. Work done equals the area under the:	force–displacement graph	speed–time graph	distance–time graph	mass–volume graph	●○○○
23. Energy is defined as the:	rate of doing work	force × time	mass × velocity	capacity to do work	○○○●
24. Energy stored in food and gasoline is:	sonic energy	nuclear energy	electrical energy	chemical energy	○○○●
25. Energy supplied by light and other electromagnetic waves is:	sonic energy	electromagnetic (radiant) energy	chemical energy	nuclear energy	○●○○
26. Energy associated with moving electric charges is:	electrical energy	sonic energy	nuclear energy	chemical energy	●○○○
27. The energy of sound waves is:	sonic energy	radiant energy	nuclear energy	chemical energy	●○○○
28. Nuclear power stations obtain energy from:	atomic nuclei	chemical bonds	sound waves	flowing water	●○○○
29. All forms of energy are either kinetic or:	thermal	nuclear	potential	chemical	○○●○
30. The energy possessed by a body due to its motion is:	potential energy	chemical energy	kinetic energy	nuclear energy	○○●○
31. The energy possessed by a body due to its position or state is:	potential energy	kinetic energy	sonic energy	radiant energy	●○○○

Follow Studybeesofficial on Instagram, YouTube Channel & WhatsApp Channel — Link in Bio

Questions	A	B	C	D	A B C D
32. Kinetic energy is a:	vector quantity	scalar quantity	negative quantity	unitless quantity	○●○○
33. The formula for kinetic energy is:	mv^2	½mv	½mv^2	mgh	○○●○
34. If the speed of a body is doubled, its kinetic energy becomes:	2 times	4 times	half	unchanged	○●○○
35. If the mass of a moving body is doubled at the same speed, its kinetic energy:	becomes four times	halves	doubles	stays the same	○○●○
36. If the speed of a body is tripled, its kinetic energy becomes:	9 times	3 times	6 times	one-third	●○○○
37. If the speed of a body is halved, its kinetic energy becomes:	one-half	double	one-fourth	one-eighth	○○●○
38. The kinetic energy of a 2 kg body moving at 3 m/s is:	18 J	9 J	6 J	3 J	○●○○
39. The kinetic energy of a 0.5 kg ball moving at 10 m/s is:	50 J	25 J	2.5 J	250 J	○●○○
40. The kinetic energy of a 1000 kg car at 20 m/s is:	20 000 J	200 000 J	400 000 J	100 000 J	○●○○
41. A 4 kg body has kinetic energy 50 J. Its speed is:	5 m/s	12.5 m/s	25 m/s	10 m/s	●○○○
42. A 2 kg body has kinetic energy 100 J. Its speed is:	50 m/s	5 m/s	10 m/s	100 m/s	○○●○
43. Which has more kinetic energy: m moving at v, or 2m moving at v/2?	m moving at v	2m moving at v/2	both equal	cannot be said	●○○○
44. A 1 kg body at 4 m/s and a 4 kg body at 2 m/s have kinetic energies that are:	equal	greater for the 1 kg body	greater for the 4 kg body	zero	●○○○
45. A bullet stops inside a sand wall. Most of its kinetic energy changes into:	gravitational potential energy	nuclear energy	heat energy	chemical energy	○○●○
46. In deriving K.E., the area under the force–displacement graph is a:	triangle	circle	trapezium	rectangle	○○○●
47. For a body starting from rest and reaching speed v, the average speed is:	v/2	v	2v	v^2	●○○○
48. The change in kinetic energy of a body equals the:	force on it	work done on it	power supplied	momentum gained	○●○○

Follow Studybeesofficial on Instagram, YouTube Channel & WhatsApp Channel — Link in Bio

Questions	A	B	C	D	A B C D
49. The kinetic energy of a 200 g ball moving at 3 m/s is:	0.6 J	1.8 J	0.9 J	0.09 J	○○●○
50. A 150 g cricket ball moves at 20 m/s. Its kinetic energy is:	30 J	15 J	60 J	3 J	●○○○
51. A 0.5 kg object has 100 J of kinetic energy. Its speed is:	10 m/s	20 m/s	40 m/s	200 m/s	○●○○
52. To move at the same speed, a football needs ___ kinetic energy than a cricket ball:	less	more	the same	zero	○●○○
53. The gravitational potential energy of mass m at height h is:	½mgh	mg/h	mgh	mh/g	○○●○
54. Gravitational potential energy is a:	vector quantity	negative quantity	unitless quantity	scalar quantity	○○○●
55. Lifting a book from the floor to a shelf stores energy as:	kinetic energy	sonic energy	nuclear energy	gravitational potential energy	○○○●
56. A stretched spring stores:	kinetic energy	elastic potential energy	sonic energy	nuclear energy	○●○○
57. The work done against gravity in lifting a body equals its gain in:	potential energy	kinetic energy	heat	sound	●○○○
58. The potential energy of a 10 kg mass at 5 m (g = 9.8 m/s^2) is:	50 J	490 J	98 J	245 J	○●○○
59. The potential energy of a 2 kg mass at a height of 10 m is:	196 J	20 J	98 J	19.6 J	●○○○
60. The work done in lifting a 5 N weight through 3 m is:	1.5 J	8 J	150 J	15 J	○○○●
61. A 60 kg person climbs stairs 3 m high. The gain in potential energy is:	180 J	1764 J	588 J	17 640 J	○●○○
62. The potential energy of a 0.5 kg object at a height of 4 m is:	2 J	196 J	19.6 J	9.8 J	○○●○
63. The potential energy of a 3 kg object at 20 m is:	588 J	60 J	29.4 J	5.88 J	●○○○
64. An 8 kg rock lies 0.5 m above the ground. Its potential energy is:	4 J	39.2 J	78.4 J	392 J	○●○○
65. A 2 kg mass has 98 J of potential energy. Its height is:	10 m	5 m	49 m	0.5 m	○●○○

Follow Studybeesofficial on Instagram, YouTube Channel & WhatsApp Channel — Link in Bio

Questions	A	B	C	D	A B C D
66. An object has 147 J of potential energy at a height of 3 m. Its mass is:	15 kg	5 kg	49 kg	0.5 kg	○●○○
67. If an object is lifted to double the height, its potential energy:	doubles	halves	stays the same	becomes four times	●○○○
68. The potential energy of an object at the reference ground level is:	zero	maximum	negative	mgh	●○○○
69. Water stored behind a dam has:	only kinetic energy	gravitational potential energy	sonic energy	nuclear energy	○●○○
70. A stretched bow ready to shoot an arrow has:	sonic energy	nuclear energy	no energy	elastic potential energy	○○○●
71. When a book falls from a shelf, its potential energy changes into:	chemical energy	kinetic energy	nuclear energy	sonic energy only	○●○○
72. At the highest point of a ball thrown upward, its energy is mostly:	kinetic energy	sonic energy	chemical energy	potential energy	○○○●
73. In a hydroelectric station, energy changes from:	chemical → light	potential → kinetic → electrical	nuclear → sound	heat → potential	○●○○
74. A light bulb converts electrical energy into:	sound and chemical	nuclear and heat	kinetic only	light and heat	○○○●
75. A car engine converts the chemical energy of fuel mainly into:	sound only	light only	elastic energy	kinetic energy (and heat)	○○○●
76. An electric fan converts electrical energy mainly into:	chemical energy	nuclear energy	light energy	kinetic energy	○○○●
77. A cyclist coasting downhill without pedalling converts potential energy into:	chemical energy	sound energy	kinetic energy	nuclear energy	○○●○
78. A solar cell converts:	light energy into electrical energy	sound into light	heat into sound	chemical into nuclear	●○○○
79. A battery converts:	light into heat	sound into electricity	chemical energy into electrical energy	heat into motion	○○●○
80. A loudspeaker converts electrical energy into:	light energy	chemical energy	nuclear energy	sound energy	○○○●
81. The law of conservation of energy states that energy can be:	created only	destroyed only	created and destroyed	neither created nor destroyed	○○○●
82. The total energy of an isolated system:	keeps increasing	remains constant	keeps decreasing	becomes zero	○●○○

Follow Studybeesofficial on Instagram, YouTube Channel & WhatsApp Channel — Link in Bio

Questions	A	B	C	D	A B C D
83. If the work done on a system is zero, its change in energy is:	maximum	negative	infinite	zero	○○○●
84. A 2 kg ball is dropped from 5 m. Its kinetic energy just before hitting the ground is (g = 9.8 m/s^2):	98 J	10 J	49 J	196 J	●○○○
85. A body dropped from 20 m hits the ground at a speed of about (g = 9.8 m/s^2):	19.8 m/s	14 m/s	9.9 m/s	39.2 m/s	●○○○
86. A stone falls freely through 5 m. Its speed at the end is about:	4.9 m/s	19.8 m/s	9.9 m/s	49 m/s	○○●○
87. A 0.5 kg ball is dropped from 10 m. Its kinetic energy at 4 m above ground is:	49 J	29.4 J	19.6 J	24.5 J	○●○○
88. At the midpoint of a free fall, the kinetic energy of the body equals:	its potential energy at that point	twice its potential energy	zero	its mass	●○○○
89. Without friction, the total mechanical energy of a falling ball:	increases	decreases	becomes zero	stays constant	○○○●
90. With air resistance, some energy of a falling ball is changed into:	nuclear energy	chemical energy	light only	heat	○○○●
91. A ball is thrown upward at 14 m/s. Ignoring air, it rises to (g = 9.8 m/s^2):	20 m	14 m	10 m	5 m	○○●○
92. A ball is thrown upward at 9.8 m/s. Its maximum height is:	9.8 m	2.45 m	4.9 m	19.6 m	○○●○
93. A 0.2 kg ball is thrown up at 10 m/s. Its maximum height is about:	10.2 m	2.55 m	20 m	5.1 m	○○○●
94. Energy 'lost' in a conversion process is mostly changed into:	mass	gravity	heat	force	○○●○
95. The share of gasoline's chemical energy that actually moves a car is about:	20%	80%	50%	100%	●○○○
96. Which kind of car is more energy efficient than a petrol car?	diesel truck	electric car	steam car	coal car	○●○○
97. A perpetual motion machine is one that:	works at 50% efficiency	works only for one hour	needs a continuous fuel supply	works forever without an external energy source	○○○●
98. Perpetual motion machines cannot work because they violate:	conservation of energy	Hooke's law	Pascal's principle	Ohm's law	●○○○
99. Energy lost to friction is mainly converted into:	light	heat	sound only	potential energy	○●○○

Follow Studybeesofficial on Instagram, YouTube Channel & WhatsApp Channel — Link in Bio

Questions	A	B	C	D	A B C D
100. A ball released from rest at height h has total energy (just before release):	zero	½mv^2	2mgh	mgh	○○○●
101. Which of the following is a non-renewable energy resource?	Coal	Wind	Sunlight	Tides	●○○○
102. Which of the following is a renewable energy resource?	Coal	Wind	Natural gas	Uranium	○●○○
103. Fossil fuels formed from the remains of plants and animals over:	a few days	a few years	millions of years	a few weeks	○○●○
104. Fossil fuels are mainly made of:	hydrocarbons	metals	minerals	silicates	●○○○
105. Uranium is used as a:	nuclear fuel	fossil fuel	biofuel	solar fuel	●○○○
106. Geothermal energy comes from:	wind	heat inside the Earth	ocean waves	sunlight	○●○○
107. Tidal energy is obtained from the:	wind	sunlight	burning coal	rise and fall of tides	○○○●
108. Hydroelectric energy is obtained from:	burning oil	nuclear fission	flowing water	wind	○○●○
109. Biomass energy comes from:	organic matter such as plants and waste	uranium	coal	tides	●○○○
110. A wind turbine converts the kinetic energy of wind into:	chemical energy	nuclear energy	sound energy	electrical energy	○○○●
111. Which of these is NOT a renewable energy source?	Geothermal heat	Waves	Natural gas	Biomass	○○●○
112. Energy sources that are naturally replenished on a human timescale are called:	renewable resources	fossil resources	non-renewable resources	nuclear resources	●○○○
113. In a fossil fuel power station, burning fuel first produces:	light only	sound only	heat energy	magnetic energy	○○●○
114. A major disadvantage of burning fossil fuels is:	no energy output	very low cost	release of pollutants and carbon dioxide	they are renewable	○○●○
115. The typical efficiency of a hydroelectric power plant is about:	95%	40%	25%	5%	●○○○
116. The typical efficiency of an electric generator is about:	98%	50%	25%	5%	●○○○

Follow Studybeesofficial on Instagram, YouTube Channel & WhatsApp Channel — Link in Bio

Questions	A	B	C	D	A B C D
117. The typical efficiency of an automobile engine is about:	85%	95%	5%	25%	○○○●
118. The efficiency of an incandescent bulb is about:	20%	50%	5%	80%	○○●○
119. Power is defined as:	work × time	the rate of doing work	force × distance	energy × time	○●○○
120. The formula for power is:	P = W/t	P = Wt	P = t/W	P = W/d	●○○○
121. One watt is equal to:	1 J s	1 N m	1 J/s	1 N/s	○○●○
122. The unit of power 'watt' is named after:	James Joule	Isaac Newton	Robert Hooke	James Watt	○○○●
123. James Watt is known for the development of the:	steam engine	telephone	light bulb	radio	●○○○
124. Power is a:	vector quantity	negative quantity	scalar quantity	unitless quantity	○○●○
125. One horsepower is defined as 550:	ft·lb/h	lb/s	ft·lb/s	ft/s	○○●○
126. A machine does 500 J of work in 10 s. Its power is:	5000 W	50 W	5 W	510 W	○●○○
127. A motor does 2400 J of work in 8 s. Its power is:	19 200 W	3 W	2392 W	300 W	○○○●
128. A 60 W bulb uses how much energy in 1 minute?	3600 J	60 J	360 J	1 J	●○○○
129. A 100 W device takes how long to do 2000 J of work?	200 s	20 s	0.05 s	2 s	○●○○
130. The work done by a 5 kW machine in 2 s is:	2500 J	10 000 J	10 J	5002 J	○●○○
131. One kilowatt-hour (kWh) is equal to:	3.6×10^3 J	3.6×10^6 J	10^3 J	3.6×10^9 J	○●○○
132. The kilowatt-hour is a unit of:	power	force	pressure	energy	○○○●
133. A 2 kW heater runs for 3 hours. The energy used is:	1.5 kWh	6 kWh	5 kWh	0.67 kWh	○●○○

Study Bees OFFICIAL PAK

Follow Studybeesofficial on Instagram, YouTube Channel & WhatsApp Channel — Link in Bio

Questions	A	B	C	D	A B C D
134. A 100 W bulb burns for 10 hours. The energy consumed is:	10 kWh	0.1 kWh	1 kWh	100 kWh	○○●○
135. Electricity bills are calculated in units of:	kilowatt-hour	kilowatt	joule per second	newton-metre	●○○○
136. A man lifts 50 kg through 2 m in 4 s (g = 9.8 m/s^2). His power is:	490 W	122.5 W	980 W	245 W	○○○●
137. A crane lifts 500 kg through 10 m in 20 s (g = 9.8 m/s^2). Its power is:	2450 W	245 W	4900 W	24 500 W	●○○○
138. A 2 hp motor has a power of about:	746 W	373 W	2238 W	1492 W	○○○●
139. A power of 7460 W is equal to:	1 hp	10 hp	100 hp	5 hp	○●○○
140. Efficiency is the ratio of:	input to output	work to time	force to area	useful output to total input	○○○●
141. The efficiency of a machine is given by:	(useful output / total input) × 100%	(input / output) × 100%	output × input	output − input	●○○○
142. Efficiency has:	unit of joule	no unit	unit of watt	unit of newton	○●○○
143. No machine can be 100% efficient because some energy is:	created inside	destroyed	lost as heat due to friction	stored as mass	○○●○
144. An engine takes 500 J and gives 100 J of useful work. Its efficiency is:	5%	20%	40%	80%	○●○○
145. A motor takes 200 W and delivers 150 W. Its efficiency is:	25%	133%	50%	75%	○○○●
146. A machine of 40% efficiency receives 500 J. The useful output is:	200 J	40 J	1250 J	300 J	●○○○
147. To obtain 600 J of useful work from a 60% efficient machine, the input needed is:	360 J	1000 J	600 J	3600 J	○●○○
148. A bulb converts 100 J of electrical energy into 5 J of light. Its efficiency (for light) is:	95%	20%	5%	50%	○○●○
149. A 90% efficient system has an input power of 800 W. The output power is:	720 W	80 W	7200 W	90 W	●○○○
150. A 50 W lamp is used for 2 hours. The energy consumed is:	100 kWh	1 kWh	0.01 kWh	0.1 kWh	○○○●

Follow Studybeesofficial on Instagram, YouTube Channel & WhatsApp Channel — Link in Bio