Hohete Tibeb Share

Ethio - Parents' Physics Test yourself for Grade 7

2019/20

Simple Machines

I. Write true if the statement is correct and false if it is wrong on your exercise book.

1. The ratio of the output work to that of the input work is efficiency.
2. A simple machine can multiply power.
3. A simply machine can multiply energy and power at the same time.
4. The SI unit of mechanical advantage is Joule.
5. A machine that multiplies speed can multiply also distance.

II. Match the items in column A to that of in column B

Column A	Column B
_____1. Simple machine.	A. has velocity ratio 2
_____2.single movable pulley	B. speed multiplier
_____3.third order lever	C. has velocity ratio 1
_____4.single fixed pulley	D. can do work easily
_____5. Inclined plane	E. energy multiplier
	F. force multiplier

III. Choose the Correct answer and write the letter of your choice on your exercise book.

1. The force exerted by the machine is
   A. efficiency B. effort
   C. load D. input work

2. A simple machine does not multiply
   A. force B. power
   C. distance D. speed

3. If effort moves five times that of the load it implies that a machine has
   A. efficiency 100 % B. MA equals to 5
   C. MA equals 1/5 D. VR equals to 5

4. Which one of the following is **true** about simple machine?
   A. the work output equals to work input
   B. work output is greater than work input
   C. work output is less than work input
   D. power output is greater than power input

5. Which one f the following is a compound machine?
   A. lawn mowers B. wedge
   C. gears D. inclined plane

6. Which one is an example of third order lever?

A. nut cracker B. nail clipper
C. crow bar D. wheel barrow

7. A practical example of wedge is
A. screw B. scissor C. Ax D. crane

8. The velocity ratio of a a single fixed pulley is
A. 1 B. 2 C. ½ D. 0

9. Which one of the following is **true** about torque?
A. it is a vector physical quantity
B. it is the product of force and parallel distance
C. it is the rotational effect of work done
D. Its SI unit is Joule

10. A simple machine has a mechanical advantage of 6. How much effort is required to lift a load of 120 N by this machine?
A. 720 N B. 20 N C. 5 N D. 0.2 N

11. Which statement is **false** about efficiency?
A. tells the performance of a machine
B. It is the ratio of output work to input work
C. It is the ratio of mechanical advantage to velocity ratio
D. it is the ratio of input work to output work

12. The SI unit of mechanical advantage is
A. Newton B. Watt C. Joule D. No unit

13. Velocity ratio of a single fixed pulley is always equal to
A. 1 B. 2 C. 3 D. 4

14. If a load of 20 N is moved by applying an effort of 5 N to the machine, what is the mechanical advantage of the machine?
A. 2 B. 3 C. 4 D. 0.25

15. A 4 m long lever is used to lift a load of 100 N by applying a force of 50 N. What is the velocity ratio of the lever when the fulcrum is located at a distance 1 m from the load and 3 m from the effort?
A. 2 B. 3 C. 4 D. 0.33

16. The turning effect of a force is
A. work B. efficiency C. torque D. mechanical advantage

17. The turning effect of a force is _____ quantity.
A. vector B. scalar C. Basic D. fundamental

18. A simple machine is used to multiply
A. distance B. mass
C. energy D. power

19. Among the following which one is distance multiplier?
A. single movable pulley B. single fixed pulley
C. inclined plane D. bicycle

20. The number of times a machine multiplies effort is
A. velocity ratio B. efficiency
C. mechanical advantage D. ideal advantage

21. The mechanical advantage of a machine is dependent on friction between
A. effort and the machine B. load and the machine
D. efficiency and the machine D. efficiency and effort

22. Among the following which one is a simple machine?
A. screw B. mower
C. typewriter D automobile

23. Which one is a third order lever?

A. hammer B. crow bar

C. scissor D. spade

IV. Fill in the Blanks with an appropriate word or phrase.

1. A spade is _____multiplier
2. The force exerted on the machine is _____
3. A mechanical advantage that the machine provides without friction is _____
4. An example of combined machine is _____
5. The ratio of distance moved by effort to distance moved by load is _____
6. The SI unit of mechanical advantage is _____

V. Workout the following and show all the necessary steps as clearly as possible.

1. a) What is input work?
   b) i) Write the mathematical expression for input work.
   ii) Is it vector or scalar?
2. What is the efficiency of a machine that has an output work of 4000 J and input work of 8000 J?
3. A load of 200 N is moved by an effort of 50 N using a simple machine. If there is no friction, find its mechanical advantage. Is this machine a force multiplier or a speed multiplier?
4. When an effort of 360 N is applied at one end of a lever arm it moves through 24 cm, at the same time a load of 480 N placed at the other end raised through 16 cm. Find
   a) its velocity ratio, b) its mechanical advantage,
   c) its efficiency. d) Is the machine speed multiplier or force multiplier?

2019/20

Temperature and Heat

I. Write true if the statement is correct and false if it is wrong.

1. Heat and temperature are scalar quantities.
2. Most substances are contract when heated.
3. The number of divisions between boiling point and melting point of water in Fahrenheit scale is 180.
4. Celsius scale is less accurate than Kelvin scale.
5. The absolute scale of temperature have negative value.

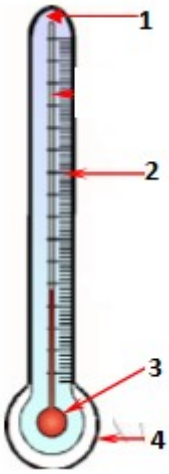
II. Match the items in column 'A' with ther items in Column 'B'

Column A	**Column B**
1. Fahrenheit scale	A. average molecular kinetic energy
2. First order lever	B. total kinetic energy of particles
3. Kelvin	C. one hundred divisions
4. Temperature	D. fulcrum between load and effort
5. Celsius scale	E. no negative value
	F. 180 divisions

III. Choose the correct answer and circle the answer on the question paper.

1. Which one of the following has definite volume but not shape?
   A. solid B. liquid C. gas D. vapor
2. Which one of the following is an intensive quantity?
   A. mass B. volume C. heat D. density
3. Which one of the following statement is **true**?
   A. both mercury and alcohol thermometers measures very high temperature
   B. both mercury and alcohol, thermometers measure very low temperature
   C. mercury thermometer measures very low temperature
   D. alcohol thermometer measures very low temperature
4. Among the following scales of temperature, which one have only a positive value?
   A. Kelvin scale B. Fahrenheit scale
   C. Celsius scale D. alcohol scale
5. Which one of the following is **not** the effect of heating? Change in
   A. length B. mass
   C. state D. temperature

6. Consider a thermometer shown in the figure below.



Write the parts of the thermometers represented by 1, 2, 3, and 4 respectively?

A. vacuum, scale, mercury, bulb
B. bulb, scale, vacuum, mercury
C. scale, mercury, bulb, vacuum
D. mercury, bulb, scale, vacuum

7. The SI unit of temperature is

A. ºC B. ºF C. K D. ºT

8. Which one of the following is **true** about the ice point of Fahrenheit and Celsius scale?

	Fahrenheit	**Celsius**
A.	32 ºF	273 ºC
B.	212 ºF	32 ºC
C.	32 ºF	0 ºC
D.	0 ºF	32 ºC

9. 50 ºF in Celsius scale is equivalent to

A. 34 ºC B. 10 ºC
C. 23.5 ºC D. 323 ºC

10. Which one of the following is **correct** about boiling?

A. it has a cooling effect
B. it is affected by wind
C. it happens on the surface of a body
D. it happens throughout the liquid body

11. Which one is extensive property?

A. density B. temperature
C. volume D. pressure

12. The lower fixed point in Fahrenheit scale is

A. 0 B. 32 C. 212 D. 100

13. The SI unit of heat energy is

A. Joule B. Kelvin C. Calorie D. Watt

14. Which one of the following is a nonrenewable energy resource?

A. solar B. wind
C. kerosene D. hydro

15. Which temperature is greatest?

A. 60 ºC B. 0.0 K C. 110 ºF D. 350 K

16. Which one of the following process can be made faster by exposing to wind?

A. boiling B. melting C. expansion D. evaporation

IV. Fill in the blanks with an appropriate word or phrase.

1. The Sun is the source of _____energy.
2. The total kinetic energy of the particles is _____

3. The melting point of water is _____ºF and its boiling point is_____ ºF.
4. Examples of intensive properties are _____, _____, and _____.
5. The SI unit of heat energy is_____

V. Workout the following and show all the necessary steps as clearly as possible.

1. What is the temperature reading in Kelvin scale:
   a. 90 ºC b. – 37 ºC
2. Convert the following to Fahrenheit.
   a. 40 ºC b. 80 ºC
3. A load of 100 N is moved by an effort of 20 N. What is the mechanical advantage of the machine?
4. What is the efficiency of a single movable pulley that has a mechanical advantage of 1.2 ?
5. At what temperature the Celsius scale shows the same reading like that of the Fahrenheit scale?
6. Convert 30 K to ºF.