



Name _____ Class _____ Roll no. _____ Date _____ Marks _____ / 33

1 Key words**[4]**

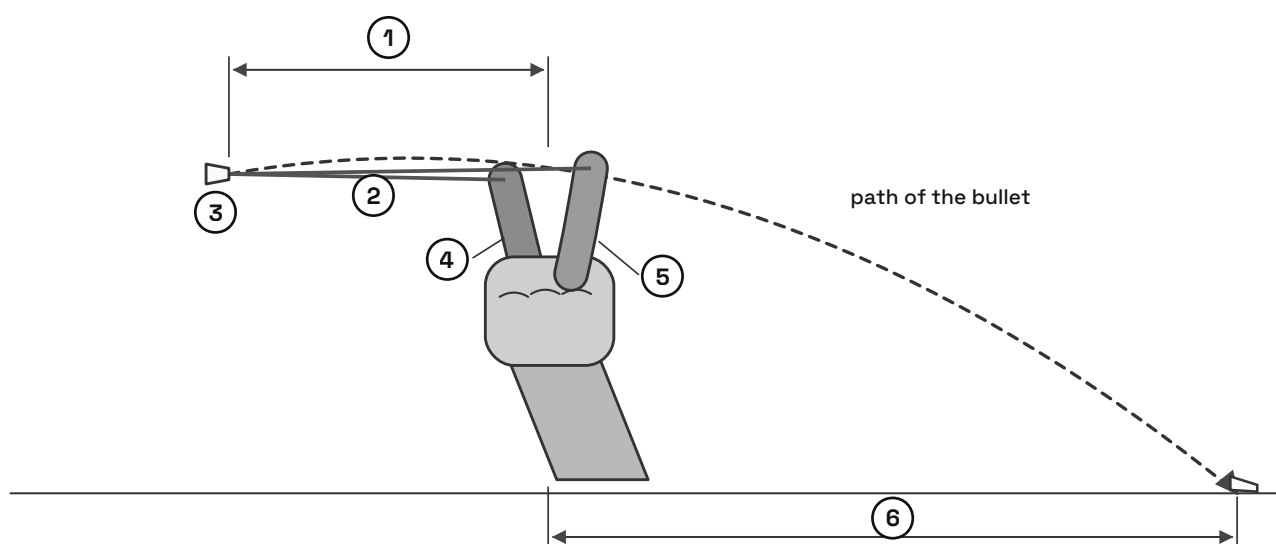
Fill in the blanks with words from the box. Two words in the box are not needed. Each blank carries 0.5 mark.

controlled variables dependent variable derived unit fundamental unit
independent variable newton observed seven units variable

A factor that is connected with an event and can change is called a _____. In an experiment, the variable the experimenter changes on purpose is the _____, and the one that is measured because it changes in response is the _____. All the other variables are kept the same: they are the _____, and they make the test fair. A unit that does not depend on any other unit is a _____; the SI system has _____ of them. A unit made by combining fundamental units is a _____. In a correct equation, both sides have the same _____.

2 Label the diagram**[3]**

The diagram shows a rubber-band catapult, as in Activity 1.1. Name the parts and quantities numbered 1 to 6. Each carries 0.5 mark.



- | | |
|----------|----------|
| 1. _____ | 2. _____ |
| 3. _____ | 4. _____ |
| 5. _____ | 6. _____ |



[5]

Choose the correct option for each of the following questions.

- i. Which of these is a fundamental unit? [1]
a. newton
b. pascal
c. kilogram
d. joule
- ii. Which physical quantity has the unit m s^{-1} ? [1]
a. acceleration
b. velocity
c. force
d. density
- iii. Which of these is a derived unit? [1]
a. candela
b. ampere
c. joule
d. kelvin
- iv. Which of these is the newton? [1]
a. kg m s^{-2}
b. $\text{kg m}^2 \text{s}^{-2}$
c. $\text{kg m}^{-2} \text{s}^{-2}$
d. kg m s^{-1}
- v. Sita puts ice cubes of the same size in cups of water at 20°C , 40°C and 60°C , and times how long each takes to melt. What is the **dependent** variable? [1]
a. the temperature of the water
b. the time the ice takes to melt
c. the size of the ice cubes
d. the amount of water in each cup

[3]

Write very short answers to the following questions.

- a. What is a unit? [1]
-
-
- b. On a graph, along which axis is the independent variable plotted? [1]
-
-
- c. In the equation $s = vt$, the speed v is kept the same. Which quantity is the dependent variable? [1]

[8]

Write short answers to the following questions.

- a. Give a reason: some variables should be controlled while doing an experiment. [2]



b. Give a reason: $v^2 = ut$ is not a valid relation. [2]

c. Write any two differences between a fundamental unit and a derived unit. [2]

d. Manisha wanted to test her dog's eating habits. She decided to study how **the amount of food and the time of giving food** affect how fast the dog eats. What is wrong with her experiment, and how can she fix it? [2]

6 Long answer [4]

Write a long answer to the following question.

Chandani wanted to find out how substances mixed into soil affect plant growth. She sieved a bucket of soil from a field and shared it equally among 12 pots of the same size. She mixed two spoons of lime into each of three pots, two spoons of urea into the next three, two spoons of table salt into the next three, and two spoons of compost into the last three. She planted similar seeds of the same plant in every pot, kept them all in a sunny place in the house, and watered all of them every day. Once the plants grew, she measured the height of each one daily.

- Name the independent variable in her experiment. (1)
- Name the dependent variable. (1)
- Name any two controlled variables. (1)
- Why did she use 3 pots for each substance? (1)



[4]

Find the fundamental units in:

- newton (N)
- watt (W)
- joule (J)
- pascal (Pa)

Answer:

[2]

Ram checks the formula $s = ut + at^2$ by its units. Every term comes out in meters, so he says the formula must be correct. Is he right? Explain.

(not marked)

Extension of the rubber band (cm)	Distance traveled by the bullet (cm)
4	
6	
8	
10	

Name your independent, dependent and controlled variables. Did 8 cm send the bullet twice as far as 4 cm?
