

WORKSHEET

Full marks 35

1 Key words [4]

displacement friction horsepower joule mass scalar vector velocity watt

weight

2 Multiple choice **[5]**

i. What is the unit of work? [1]

- ii. Which of these statements is true? [1]

- iii. Which of these statements is true? [1]

- iv. A man walks 70 m right round his house, starting and ending at the main gate. Which statement is true? [1]

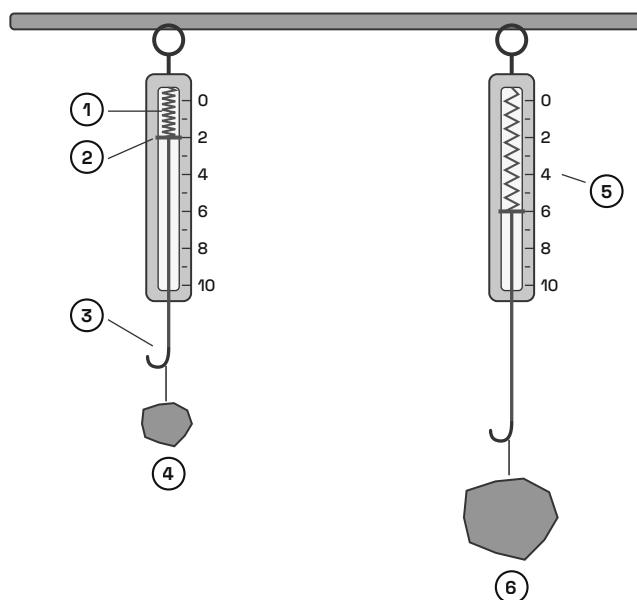
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- v. A car goes round a circular track at a steady 40 km/h. Which is true? [1]
- its speed and its velocity both stay the same
 - its speed stays the same, but its velocity changes
 - its velocity stays the same, but its speed changes
 - both its speed and its velocity change

3 Label the diagram [3]

The diagram shows two spring balances with stones hanging from them. Write the name of each part, or the weight read on the scale, numbered 1 to 6. Each carries 0.5 mark.



- _____
- _____
- _____
- _____
- _____
- _____

4 Very short answers [3]

Write very short answers to the following questions.

- a. What is the value of the acceleration due to gravity near the Earth's surface? [1]

- b. Name the instrument used to measure weight. [1]

- c. How many watts make one kilowatt? [1]



5 Short answers

[8]

Write short answers to the following questions.

- a. Write any two differences between speed and velocity.

[2]

- b. "Friction is a necessary evil." Justify the statement.

[2]

- c. Write any two ways of reducing friction.

[2]

- d. Is a person pushing the wall of a house doing work? Give a reason.

[2]

6 Long answer

[4]

Write a long answer to the following question.

Explain distance and displacement with suitable examples.



[6]

Solve the following problems. Show your working.

- a. What distance does a car cover in 10 s, if it is traveling at a speed of 20 m/s?

[illegible]

Answer:

- b. A porter lifts a 50 kg sack of rice from the ground onto the roof of a bus, 3 m high. Then he slides the sack 4 m along the roof, pushing with a force of 450 N. ($g = 9.8 \text{ m/s}^2$)
- How much work does he do against gravity? (2)
 - How much work does he do against friction? (2)

[illegible]

Answer:

8 Think

Think, then answer.

Two people do the same amount of work. When is their power the same, and when is it different? Explain.

9 Activity: Sliding and rolling (Activities 6.7 and 6.9)

Pull a brick or a wooden block steadily along the floor with a spring balance, in each way given in the table, and write the reading.

How the block is pulled	Reading on the spring balance (N)
lying on its wide face	
standing on its narrow side	
on its narrow side, with a second block on top	
rolling on two or three round pencils	

What did you find about friction?

