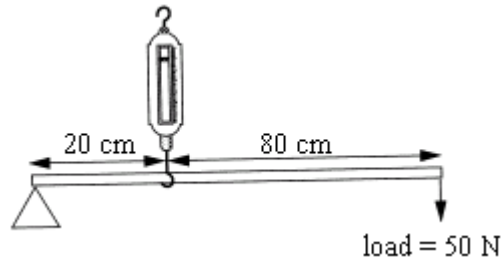


Chapter 17 Simple Machine

Paper 1

Answer **all** questions. Each question is followed by four options, **A, B, C** and **D**. For each question, choose **one** answer only.

1.



The diagram above shows a lever that is balanced. What is the reading of the spring balance and the class of the lever?

	Reading of spring balance	Class of lever
A	200 N	First
B	225 N	Second
C	250 N	Third
D	165 N	Second

2. Among the following tools, which belongs to the same class of lever as a fishing rod?

- A** Scissors
- B** Paper cutter
- C** Bottle opener
- D** Ice tongs

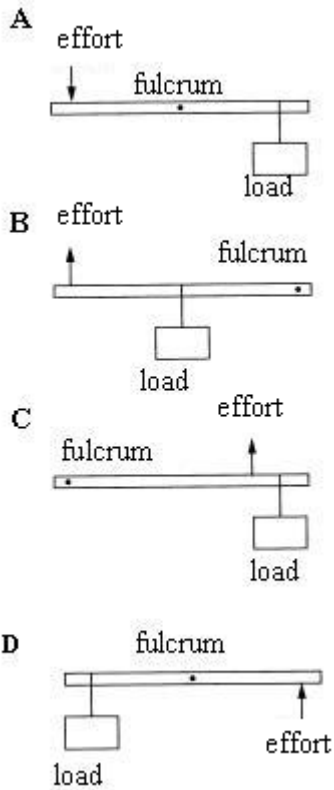
3.



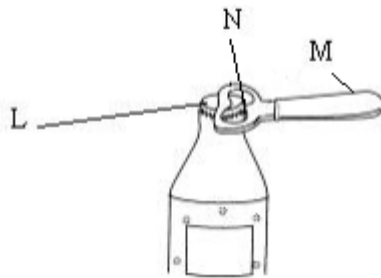
Among the following tools, which is classified under the same class of lever as the tool shown in the diagram above?

- A** Pliers
- B** Broom
- C** Wheelbarrow
- D** Bottle opener

4. Among the following, which **correctly** shows the model of the lever system for ice tongs?



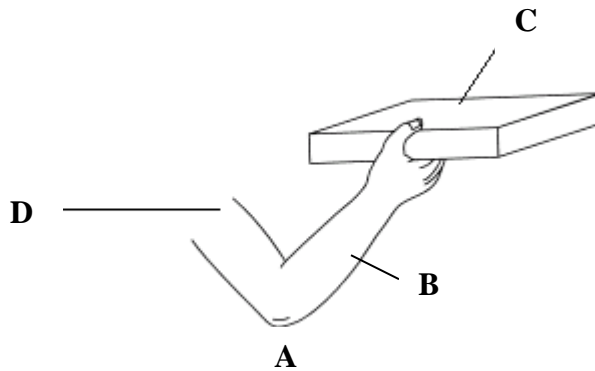
5.



The diagram above shows a bottle opener that is being used to open the lid of a bottle. Among the following, which is **correct**?

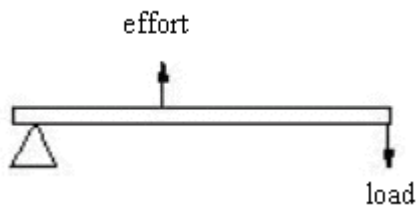
- | | <i>Fulcrum</i> | <i>Effort</i> | <i>Load</i> |
|----------|----------------|---------------|-------------|
| A | <i>L</i> | <i>M</i> | <i>N</i> |
| B | <i>N</i> | <i>L</i> | <i>M</i> |
| C | <i>M</i> | <i>L</i> | <i>N</i> |
| D | <i>N</i> | <i>M</i> | <i>L</i> |

6.



The diagram shows a student holding a book. Among **A**, **B**, **C** and **D**, which is the location of fulcrum?

7.



Among the following tools, which uses the class of lever as shown in the above diagram?

- I Knife
- II Badminton racket
- III Wheelbarrow

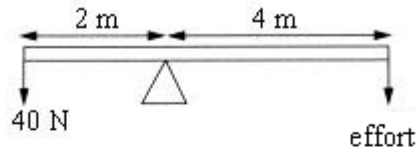
- A I only
- B I and II only
- C II and III only
- D I, II, and III

8. Which of the following tools is classified in the same class of lever as the wheelbarrow?

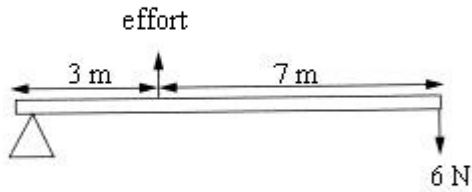
- A Pliers
- B Scissors
- C Paper cutter
- D Fishing rod

9. Among the following, which needs an effort of 20 N so that the rod becomes balanced?

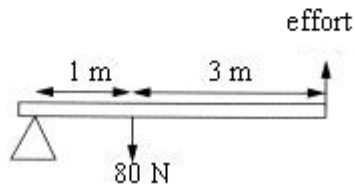
I



II

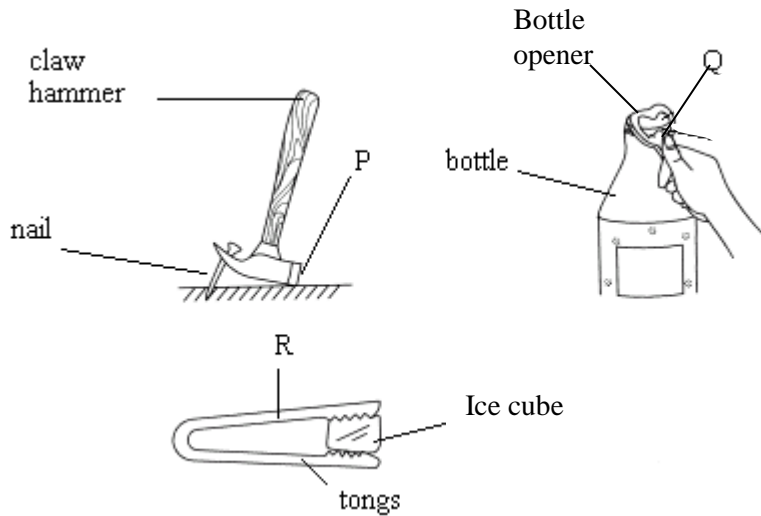


III



- A I only
- B I and II only
- C II and III only
- D I, II, and III

10.

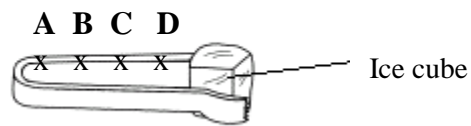


Among the following, which correctly shows the points of *P*, *Q* and *R* for the lever system in the diagram above?

- I P - Fulcrum
- II Q - Load
- III R - Effort

- A I only
- B I and II only
- C II and III only
- D I, II, and III

11.



The diagram above shows a ice tongs. Which of the position labelled **A**, **B**, **C** and **D** requires the least effect to hold the ice cube?

12.

- | |
|---|
| <ul style="list-style-type: none"> • Crowbar • Pliers |
|---|

Which of the following tools belongs to the same class of lever as the tools listed above?

- A Scissors
- B Paper cutter
- C Nutcracker
- D Fishing rod

13. Which of the following tools is **true** about first-class lever?

- A The effort and load act in the different direction
- B The fulcrum is between the effort and load
- C A big load requires a small amount of effort to lift it
- D The effort is always farther from the fulcrum

14. Which of the following pairs of class of lever and tool is matched **correctly**?

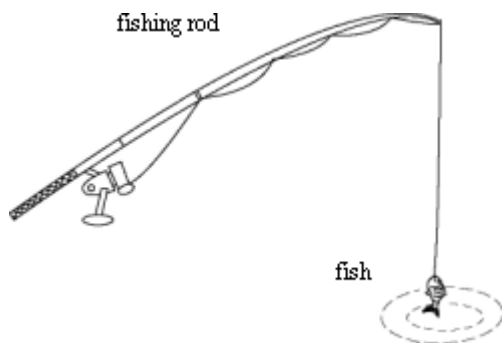
	<i>Class of lever</i>	<i>Tool</i>
A	Second-class	Pliers
B	First-class	Fishing rod
C	Third-class	Knife
D	Second-class	Scissors

15. Load of tool X locates between the fulcrum and the effort. What is tool X?

- A Crowbar
- B Paper cutter
- C Knife
- D Wheelbarrow

Paper 2

Answer the question.



The above figure shows a device that uses a lever system.

(a) Label the above figure showing the positions of fulcrum, effort and load.

(b) What is the direction of action for the effort and load?

(c) State **two** other examples of tools that use the same kind of lever system.

(d) State **one** advantage of the class of lever shown by a fishing rod.

(e) If the distance of the fish from the effort and the fulcrum are 60 cm and 100 cm respectively, calculate the weight of the fish if an effort of 400 N is required to lift the fish.

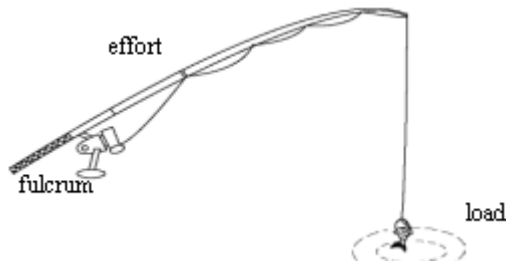
Answers:

Paper 1

1	C	11	D
2	D	12	A
3	B	13	B
4	C	14	C
5	A	15	D
6	A		
7	B		
8	C		
9	D		
10	D		

Paper 2

(a)



(b) The effort and load act in opposite directions

(c) Ice tongs and broom/ho

(d) Makes work easier

(e)

Load x distance = effort x distance

Load x 100 = 400 x 40

Load = $\frac{400 \times 40}{100}$

100

= 160 N