DEMO ANSWERS/ SOLUTIONS

Class: VII

Mid Term Examination 2025-2026

Science

Set A2

Time Allowed: 2½ h MM: 60

Genal Instructions:

- The question paper consists of three sections.
- Please attempt all questions of one section together.
- Do not mix your answers from one section into another.
- Attempt three separate sections of Physics, Chemistry and Biology on three separate answer sheets.

Section A(Physics) MM: 20

General instructions for Physics portion:

- Please check that the Physics question paper has ? printed pages.
- Physics question paper consists of ? questions.
- All questions are compulsory. However, an internal choice is provided in some questions.

1. State whether the statements given below is TRUE or FALSE:

(i) (a) Some ice cubes placed in a dish melt into water after sometime. The ice cubes get heat for this transformation from surrounding air. (T) (1)

(ii) The thin wire inside the glass bulb of the lamp glows. The glowing thin wire is called the filament of the lamp. **(T) (1)**

For question number 2, fill up the blanks with correct word (s)/ scientific expression. (write only correct answer with correct serial number, no need to write the words)

2.

) Hollow bricks used to construct the outer walls of houses in hot regions, have _____ filled in them.

(b) An LED has _____ terminals.

For question number 3 write the correct option out of 4 choices. (write only correct answer with correct serial number, no need to write the words)

3 (i)
A smoke detector is a device that detects smoke and sounds an alarm. Suppose you are fitting a smoke detector in your room. The most suitable place for this device will be (1)

(a) near the floor

(b) in the middle of a wall

(c) on the ceiling

(d) anywhere in the room

Answer: (c) on the ceiling (1)

3 (ii)
Choose the WRONG statement.

(a) A switch is the source of electric current in a circuit.

(b) A switch helps to complete or break the circuit.

(c) A switch helps us to use electricity as per our requirement.

(d) When the switch is in 'OFF' position, there is an air gap between its terminals.

Answer: (a) A switch is the source of electric current in a circuit. (1)

3 (iii)

Which one is a good conductor of electricity?

(a) glass coin

(b) wood coin

(c) metal coin

(d) plastic coin

Answer: (c) metal coin (1)

For question number **2** two statements are given- one labelled **Assertion (A)** and the other labelled **Reason (R).** Select the correct answer to these questions from the codes (a), (b), (c) and (d) as given below:

(a) Both A and R are true, and R is the correct explanation of the assertion.
(b) Both A and R are true, but R is not the correct explanation of the assertion.
(c) A is true, but R is false.
(d) A is false, but R is true.

4.

Assertion (A): A battery is made by placing two or more cells in random order.

Reason (R): A battery is formed when the positive terminal of one cell is connected to the negative terminal of the next.

Answer: (d) A is false, but R is true. **(1)**

5. Suppose the '+' and '–' symbols cannot be read on an electric cell. Suggest a method to identify the two terminals of this cell. You can answer using fully labelled picture also.

Answer:

Method Using an LED with Known Polarities:
What you need:

- An LED (with a **longer leg as positive** and **shorter leg as negative**)
- Two connecting wires
- The battery in question (with unclear terminals)

Steps:

1. **Connect the longer leg (positive terminal) of the LED** to one end of the battery.
2. **Connect the shorter leg (negative terminal) of the LED** to the other end.
3. **Observe the LED:**

If the **LED glows**, then:
The **end connected to the longer leg** is the **positive terminal of the battery**.
The **end connected to the shorter leg** is the **negative terminal of the battery**.

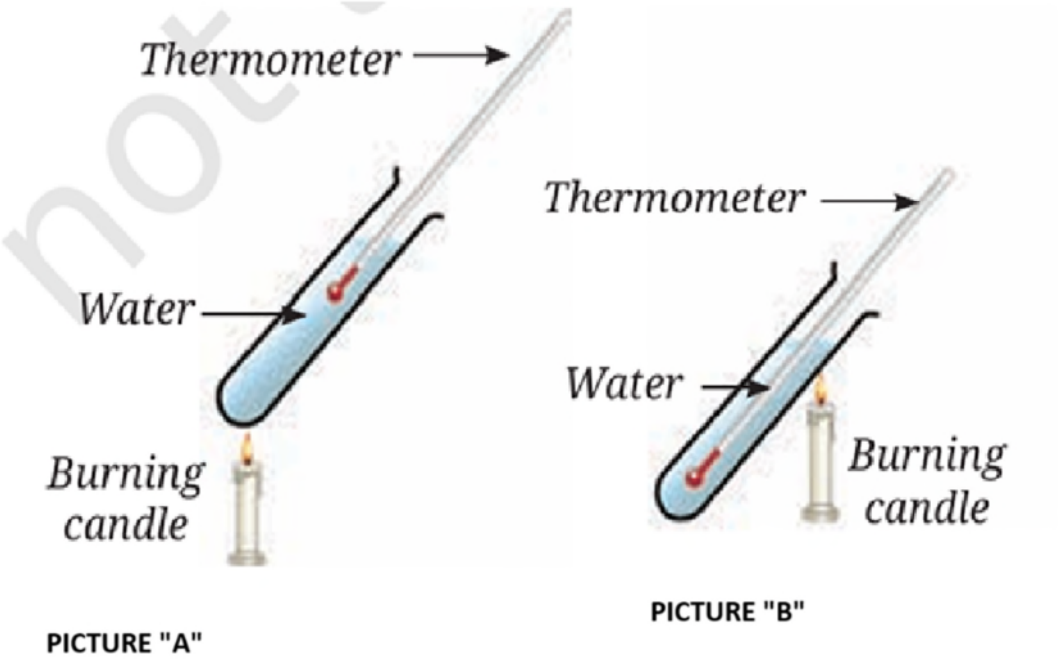
If the **LED does not glow**, reverse the connections and try again.
When the LED glows after reversing, the connections now indicate the correct polarity.

OR

Method to identify the terminals:

Observe the ends of the battery:
The **end with a small raised metal cap** is the **positive terminal (+)**.
The **flat end** is the **negative terminal (–)**. (2)

6. Study the picture shown below and answer in which case (which picture)the thermometer will show higher rise in temperature if in the beginning of experiment before heating was stared , both thermometer were showing same temperature figure. Explain Why?



Answer:

Thermometer in picture "A will record a higher temperature. (1)

Reason: In picture "A" the flame heats the bottom of the water column directly, and heat moves upward by convection making whole water including upper layers of water hot so the thermometer shows higher temperature quickly.

In picture "B" the convection currents will happen only above the flame so lower layers of water being heavy and cold will remain cold- heavy and will not get chance to get heated as they will not become the part of convection current so temperature will be lower. Cold water will not get heat to rise up because heat source is above it. So cold and heavy will continuously remain at bottom only. (1)

7.

Read following passage and answer the questions followed.

People living in coastal areas experience an interesting phenomenon caused by the heating and cooling of land and water at different rates. As the land gets heated faster than water during the day, it causes warm air above the land to rise. This causes cooler air to move from the sea towards the land. This movement of cooler air from the sea to the land is called sea breeze. Hence, in hot places, sea breeze relieves people from the heat. That is why, windows of the houses in coastal areas are placed facing the sea.

7. (a) What causes the air above the land to rise during the day in coastal areas?

Answer: The land gets heated faster than water. (1)

7. (b) What is the direction of flow of wind during sea breeze (where to where)?

Answer: Sea to land (1)

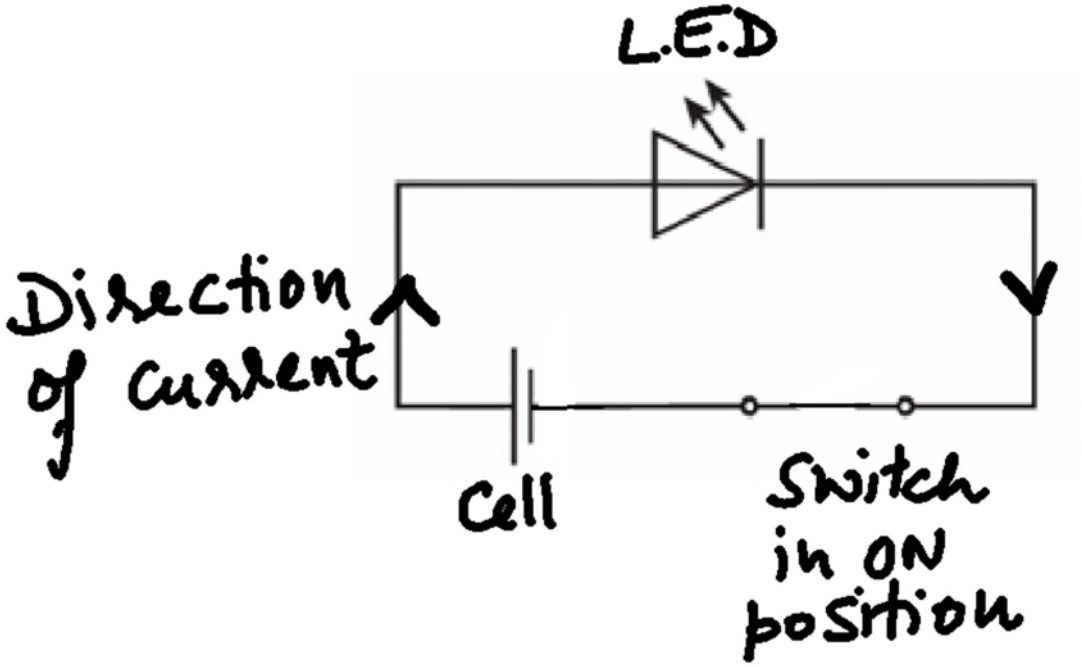
7. (c) During day what acts as a heat source land or sea?

Answer: Land (1)

For question number 8, either do 8 (a) fully with its all parts OR do 8 (b) fully with its all parts. (any one only out of two). Write clear and correct serial number of the one you are attempting. Do not do/touch both of them.

8.(a)
Draw a circuit diagram using scientific symbols electrical components showing (not picture of artistic skills). All components should be in same circuit.
(i) one LED
(ii) One cell
(iii) One switch in closed position
(iv) Direction of electric current

Answer:



(5)

OR

8 (b)

(i) Following picture shows four cells fixed on a board. Draw lines to indicate how you will connect their terminals with wires to make a battery of four cells. Draw the exactly same diagram on your answer sheet and then do.

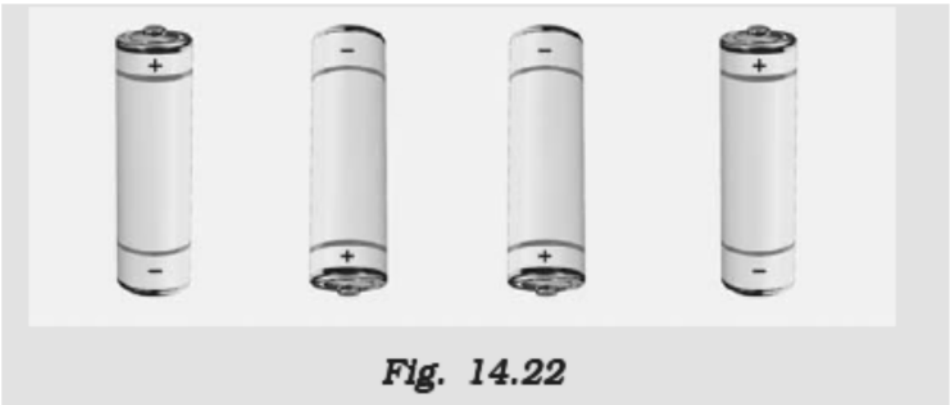
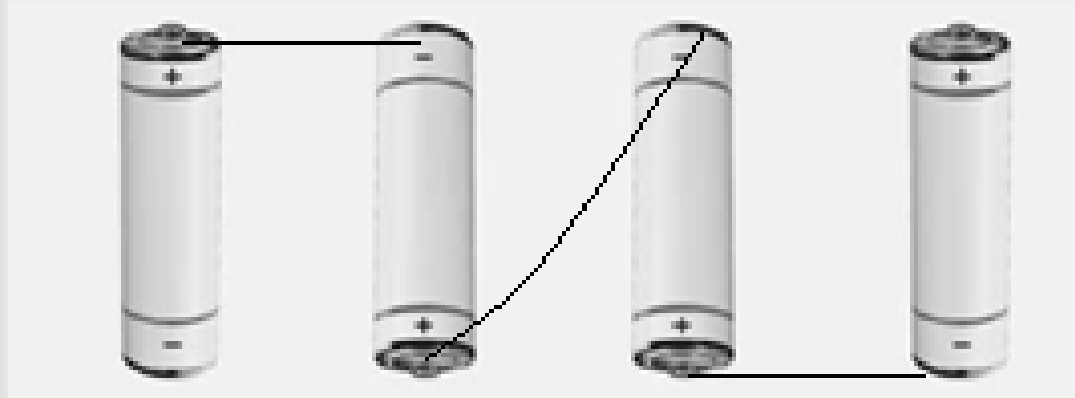


Fig. 14.22

Answer:


(4)

8 (b)
(ii) What is a battery? How is it different from a cell?

Answer: Battery is a combination of cells joined in a series. So more than one cell makes a battery.(1)