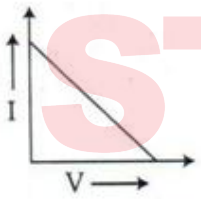
Chapter End Test

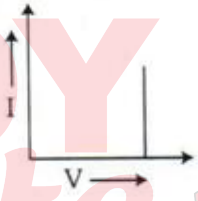
Date : _____ Duration: 40 Min. Max. Marks : 25	Science **Topic :** Electricity- Chemical Reactions & Equations	Class X

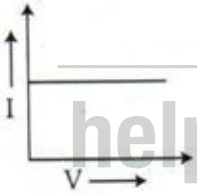
General instruction:
1. This question paper consists of two sections.
2. Section A consists of 15 & Section B consists 10 marks.
3. The answer of MCQs has to done in separate OMR sheet.
4. Subjective section has 6 questions of 1, 2 & 3 marks.
5. Subjective questions have to be answered separately in answer sheets.
5. All questions are compulsory.

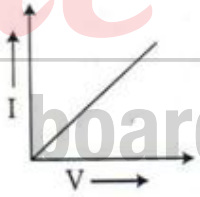
Section – A

1. The graph between current (I) and potential difference (V) in the experimental verification of Ohm's Law drawn by four students. Which one is correct?

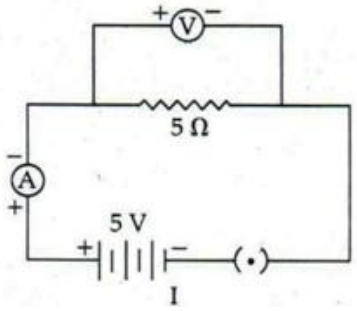
(a) 

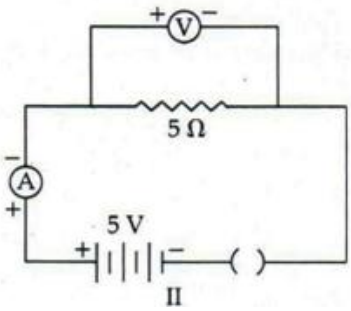
(b) 

(c) 

(d) 

2. For the circuits shown in figures I and II, the ammeter readings would be



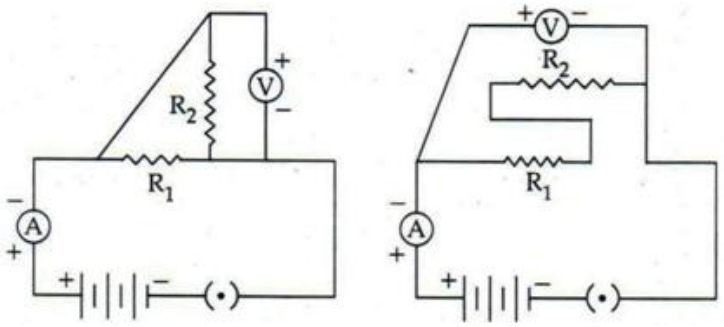


(a) 0 A in Circuit I and 1 A in Circuit II
(b) 0 A in both Circuits
(c) 1 A in both Circuits
(d) 1 A in Circuit I and 0 A in Circuit II

3. Which of the following is a chemical change:

(a) Boiling of water to give water vapors
(b) Melting of ice to give water
(c) Combustion of LPG.
(d) Dissolution of salt in water.

4. The resistors R_1 and R_2 are connected in



(a) Parallel in both circuits

(b) Series in both circuits

(c) Series in circuit I and in parallel in circuit II

(d) Parallel in circuit I and in series in circuit II

5. Which one is correct statement about the reaction?

$Fe(s) + CuSO_4(aq) \rightarrow FeSO_4(aq) + Cu(s)$?

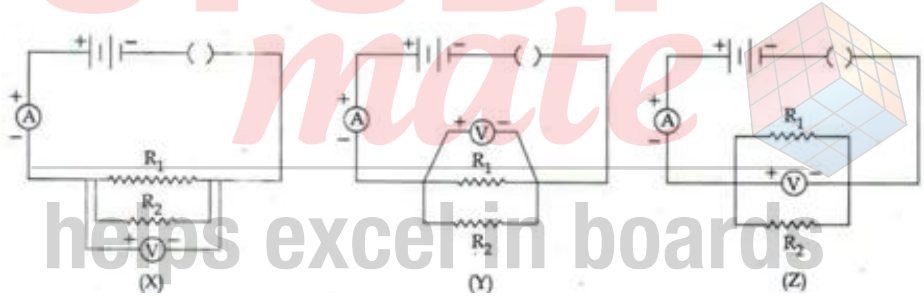
(a) It is a single displacement reaction.

(b) It is a redox reaction.

(c) In this reaction, Fe is oxidised and Cu+ is reduced.

(d) Each one.

6. In the experiment on finding the equivalent resistance of two resistors connected in parallel three students connected the Voltmeter in their circuits in the three ways X, Y and Z shown here.

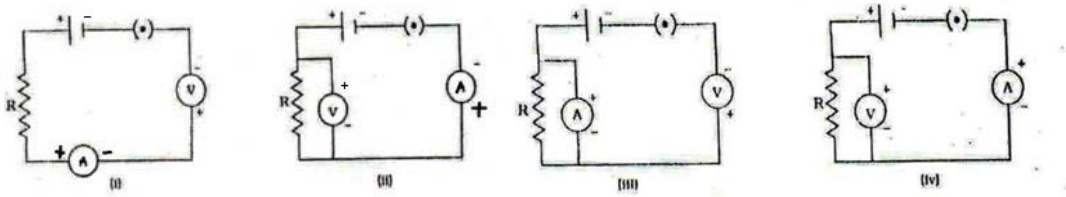


The voltmeter has been correctly connected in.

(a) cases X and Y only (b) cases Y and Z only

(c) cases Z and X only (d) all the three cases

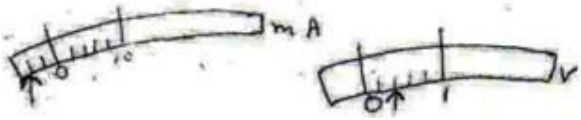
7. Identify the circuit (Figure) in which the electrical components have been properly connected.



(a) (i) (b) (iii)

(c) (iv) (d) (ii)

8. The rest positions of the needles in a milliammeter and voltmeter when not being used in a circuit are as shown in the figure. The zero error and 'least count' of these two instruments are.



(a) (+4mA, –0.2V) and (1mA, 0.1V) respectively
(b) (+4mA, –0.2V) and (2mA, 0.2V) respectively
(c) (–4mA, +0.2V) and (2mA, 0.2V) respectively
(d) (–4mA, +0.2V) and (2mA, 0.1V) respectively

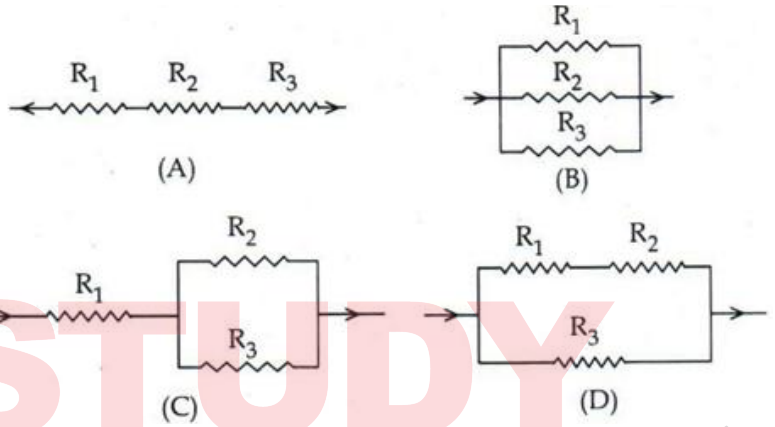
9. The equation

$Cu + xHNO_3 \rightarrow Cu(NO_3)_2 + yNO_2 + 2H_2O$

The values of x and y are

(a) 3 and 5 (b) 8 and 6
(c) 4 and 2 (d) 7 and 1

10. To determine the equivalent resistance of three resistors, when connected in a parallel arrangement, four students connected the resistors as follows.



The correct set up is that of student.

(a) A (b) C
(c) D (d) B

11. A student has to connect 4 cells of 1.5V each, to form a battery of voltage 6V

(a) B (b) C
(c) D (d) A

12. Zn^{2+} (aq) + 2e → Zn(s). This is

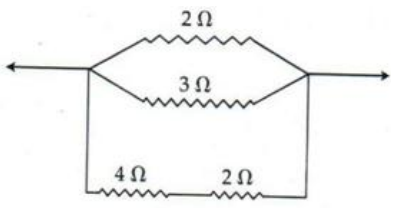
(a) Oxidation reaction (b) Reduction reaction
(c) Redox reaction (d) None of these

13. A dilute solution of sodium carbonate was added to two test tubes one containing dilute HCI (X) and the other containing dilute NaOH (Y). The correct observation was:-

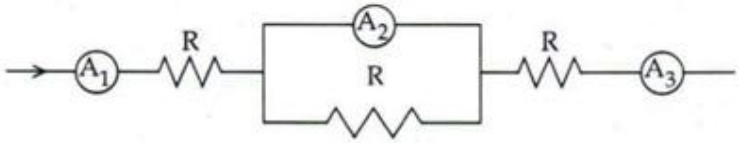
(a) A brown colored gas liberated in test tube X
(b) A brown colored gas liberated in test tube Y
(c) A colorless gas liberated in test tube X
(d) A colorless gas liberated in test tube Y

14. Calculate the Equivalent Resistance from the following combination of resistors.

(a) Ω 2
(b) Ω 3
(c) Ω 1.5
(d) Ω 1



15. The statement that is most correct about the following circuit is:



(a) $A_1 < A_2$ (b) $A_3 < A_2$

(c) $A_1 = A_2 = A_3$ (d) $A_1 = A_3$

Section – B

1. Which is having more resistance: A 100 W bulb or a 60 W bulb? **[1]**

2. Name the instrument used for measuring: **[1]**

(i) Potential difference (ii) Current

3. Why do we need to balance all chemical equations? **[1]**

4. In the reaction represented by following equation **[2]**

$CuO\ (s) + H_2\ (g) \rightarrow Cu(s) + H_2O(l)$

(a) Name the substance oxidized. (b) Name the substance reduced.

(c) Name the oxidizing agent. (d) Name the reducing agent.

5. Why do we use parallel circuit arrangement for domestic wiring? Give any two reasons. **[2]**

6. Several electric bulbs designed to be used on a 220 V electric supply line, are rated 10 W. How many lamps can be connected in parallel with each other across the two wires of 220 V line if the maximum allowable current is 5 A? **[3]**

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Hints / Solutions to Chapter End Test

Date : _____ Duration: 40 Min. Max. Marks : 25	Science **Topic :** Electricity- Chemical Reactions & Equations	Class X

Section – A

1.	(d)	**2.**	(d)	**3.**	(c)	**4.**	(d)	**5.**	(a)
6.	(d)	**7.**	(d)	**8.**	(c)	**9.**	(c)	**10.**	(d)
11.	(d)	**12.**	(b)	**13.**	(c)	**14.**	(d)	**15.**	(d)

Section – B

1. 60 W bulb because $R \propto 1/p$ i.e resistance is inversely proportional to the power, when voltage remain constant.

2. (i) Voltmeter (ii) Ammeter

3. The chemical equation needs to be balanced so that it follows the law of conservation of mass. A balanced chemical equation occurs when the number of the different atoms of elements in the reactants side is equal to that of the products side.

4. In the reaction

$CuO\ (s) + H_2\ (g) \rightarrow Cu(s) + H_2O\ (g)$

(a) Oxidised substance H_2 (b) Reduced substance Cu

(c) Oxidising agent CuO (d) Reducing agent H_2

5. (i) Each appliance have equal potential difference

(ii) Each appliance have a separate switch to on/off

(iii) Each appliances can be operated on different current

6. Resistance R_1 of the bulb = $V^2/R = (220)^2/10 = 4840$ Ohm

Let lamps can be connected in parallel with each other

According to Ohm's law, V = IR

Where, R is the total resistance of the circuit for x number of electric bulbs

R = V/I = 220/5 = 44 Ohm

Number of lamp = 4840/44 = 110

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