

Goa Board
Class X Science
Term 1
Sample Paper - 5

Time: 3 hrs**Total Marks: 90****General Instructions:**

1. The question paper comprises **two sections, A and B**. You are to attempt both the sections.
2. There is no overall choice. However, internal choice has been provided in all the five questions of the five marks category. Only one option in such questions is to be attempted.
3. All the questions of **Section A** and **Section B** are to be attempted separately.
4. Question numbers **1 to 3** in **Section A** are **one mark** questions. These are to be answered in one word or one sentence.
5. Question numbers **4 to 6** in **Section A** are **two marks** questions to be answered in about **30 words each**.
6. Question numbers **7 to 18** in **Section A** are **three marks** questions to be answered in about **50 words**.
7. Question numbers **19 to 24** in **Section A** are **five marks** questions to be answered in about **70 words**.
8. Question numbers **25 to 33** in **Section B** are multiple choice questions based on practical skills. Each question is a **one mark** question. You are to select one most appropriate response out of the four provided to you.
9. Question numbers **34 to 36** in **Section B** are questions based on practical skills and are two marks questions.

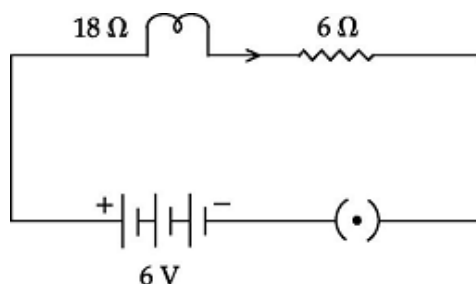
SECTION A

- Q. 1** When potassium chlorate (KClO_3) is heated in the presence of manganese dioxide catalyst, it decomposes to form potassium chloride and oxygen gas. Represent this in the form of a balanced chemical equation. (1)
- Q. 2** Apply Ohm's law to define the unit of resistance. (1)
- Q. 3** How is the brain protected from shocks and injuries? (1)
- Q. 4** $\text{X} + \text{YSO}_4 \rightarrow \text{XSO}_4 + \text{Y}$
 $\text{Y} + \text{XSO}_4 \rightarrow \text{No reaction}$
Explain the reason for the above. (2)

- Q. 5** The wattage of a bulb is 24 W when it is connected to a 12 V battery. Calculate its effective wattage if it operates on a 6 V battery (Neglect the change in resistance due to unequal heating of the filament in the two cases). (2)
- Q. 6** A student while studying the force experienced by a current-carrying conductor in a magnetic field records the following observations:
- (i) The force experienced by the conductor increases as the current is increased.
 - (ii) The force experienced by the conductor decreases as the strength of the magnetic field is increased.
- Which of the two observations is correct and why? (2)
- Q. 7** How are the alveoli designed to maximise the exchange of gases? (3)
- Q. 8** A water-insoluble calcium compound (A) on reacting with dil. H_2SO_4 released a colourless and odourless gas (B) with brisk effervescence. When gas (B) was passed through lime water, the lime water turned milky and again formed compound A. Identify A and B and write the chemical equations for the reactions involved. (3)
- Q. 9** A brown substance 'X' on heating in air forms a compound 'Y'. When hydrogen gas is passed over 'Y', it changes to 'X' again.
- (i) Name the substance 'X' and 'Y'.
 - (ii) Name the processes occurring during the two changes.
 - (iii) Write the chemical equations involved. (3)
- Q. 10** A gas is produced when conc. H_2SO_4 is added to solid sodium chloride taken in a test tube. The gas coming out through the delivery tube is passed over dry blue litmus paper and then over a moist blue litmus paper. What would you observe? Explain the reason with the help of a chemical equation. (3)
- Q. 11**
- (i) What change will you observe in the colour of red litmus paper when it is dipped into a solution of sodium sulphate? Give reason to explain your observation.
 - (ii) A bottle filled with concentrated sulphuric acid up to brim is left open in the atmosphere by mistake. Will there be any change in the level of liquid? Explain your answer with reasons. (3)
- Q. 12** Gold is a very precious metal. Pure gold is soft; it is therefore not suitable for making jewellery. It is alloyed with either silver or copper to make it hard. However, jewellers sometimes mix a large quantity of silver or copper in gold to earn more profit.
- (i) What precautions should you take while purchasing gold jewellery?
 - (ii) Why does the government insist on purchasing hallmarked jewellery?
- What values do you learn from this? (3)

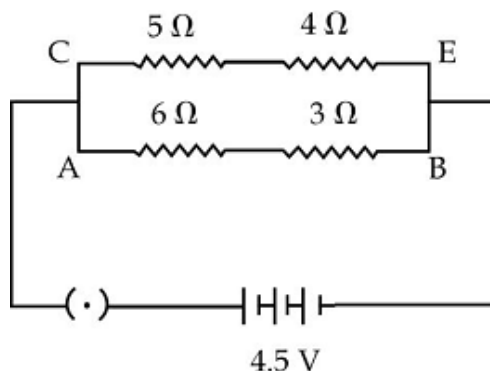
Q. 13 In the given circuit, calculate

- (i) The total resistance of the circuit
- (ii) Current flowing through the circuit
- (iii) Potential difference across the lamp and the resistor (3)



Q. 14 Draw a neat diagram of a biogas plant and label (i) the inlet of slurry, (ii) digester and (iii) gas outlet. (3)

Q. 15 Study the circuit and find



- (i) Total resistance in the arm CE
- (ii) Current in the arm AB
- (iii) Potential difference across 4 Ω resistor (3)

Q. 16 How does the strength of the magnetic field at the centre of a circular coil of a wire depend on

- (a) Radius of the coil
- (b) Number of turns of wire in the coil
- (c) Draw the magnetic lines of force in case of a circular coil of a wire (3)

Q. 17 Which part of the brain controls involuntary actions? Write the function of any two regions of it. (3)

Q. 18 Two identical resistors, each of resistance $20\ \Omega$, are connected (i) in parallel, (ii) in series, in turn, to a battery of 10 V. Calculate the ratio of power consumed in the combination of resistors in the two cases. (3)

Q. 19 (5)

- (a) A milkman adds a very small amount of baking soda to fresh milk.
 - (i) Why does he shift the pH of the fresh milk from 6 to slightly alkaline?
 - (ii) Why does this milk take a long time to set as curd?
- (b) What is a neutralisation reaction? Give two examples.

Q. 20 (5)

- (a) What are the two main allotropes of carbon? Distinguish these two allotropes on the basis of hardness and electrical conduction.
- (b) Why do aluminium articles have a longer life and attractive finish compared to many other metals?
- (c) Explain the following terms:
 - (i) Ore
 - (ii) Gangue
- (d) What is a common feature in the electronic configuration of metal atoms?

Q. 21 (5)

- (a) State the rule to determine the direction of a
 - (i) Magnetic field produced around a straight conductor-carrying current
 - (ii) Force experienced by current-carrying straight conductor placed in a magnetic field which is perpendicular to it
 - (iii) Current induced in a coil due to its rotation in a magnetic field
- (b) Differentiate between AC and DC. Write one advantage of AC over DC.

Q. 22 (5)

- (a) What is electromagnetic induction?
- (b) Describe the various methods of producing induced current.
- (c) State the rule which gives the direction of induced current.

Q. 23 (5)

- (a) Draw a neat diagram of the respiratory system and label the following parts:
 - (i) Lungs, (ii) Trachea, (iii) Bronchus, (iv) Diaphragm
- (b) Name the respiratory pigment in human beings and discuss its role.
- (c) Why is the rate of breathing in aquatic organisms much faster than that in terrestrial organisms?

Q. 24 (5)

- (i) What is meant by positive tropism and negative tropism? Explain with examples.
- (ii) Define thigmotropism and give one example of it.
- (iii) What is the difference between thigmotropism and thigmonasty? Name a plant which exhibits thigmotropism and a plant which exhibits thigmonasty. What behaviour of these plants make you think that they exhibit thigmotropism and thigmonasty?

SECTION B

- Q. 25** The following symbols are usually shown on the bottles of commercial acetic acid.
These symbols indicate that acetic acid is (1)



- A. Oxidising and corrosive
- B. Flammable and explosive
- C. Flammable and corrosive
- D. Flammable and radioactive

- Q. 26** A student prepared 20% sodium hydroxide solution in a beaker containing water. (1)

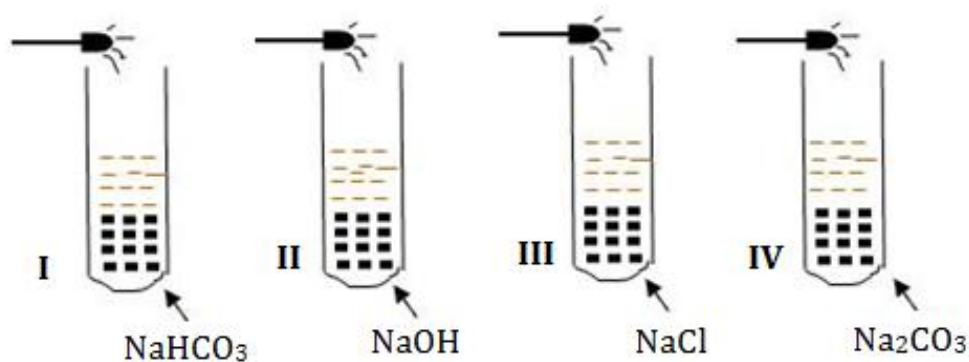
The observations noted by him are given below.

- (i) Sodium hydroxide is in the form of pellets.
- (ii) It dissolves in water readily.
- (iii) The beaker appears cold when touched from outside.
- (iv) The red litmus paper turns blue when dipped into the solution.

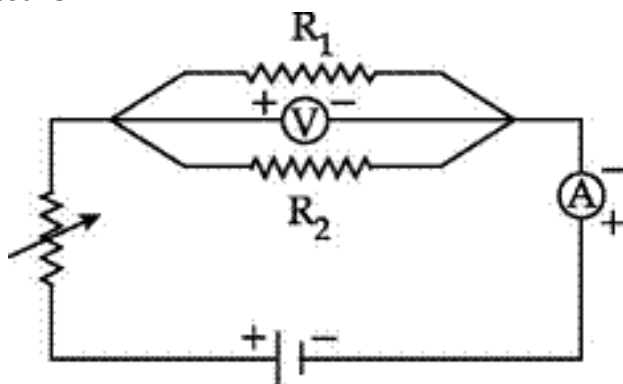
The correct observations are

- A. (i), (ii) and (iii)
- B. (ii), (iii) and (iv)
- C. (iii), (iv) and (i)
- D. (i), (ii) and (iv)

- Q. 27** In the given test tubes, different solutions are kept along with acetic acid. A burning candle is placed near the mouth of all the test tubes. The candle will extinguish when placed near which of the following test tubes? (1)

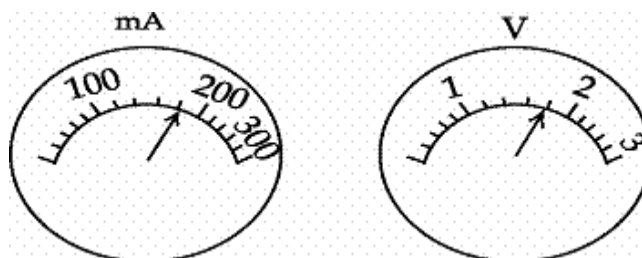


- A. I and II
B. I and IV
C. II and III
D. III and IV
- Q. 28** To determine the equivalent resistance of two resistors in parallel combination, a circuit is shown below. The component of the circuit in which the terminals are wrongly connected is (1)



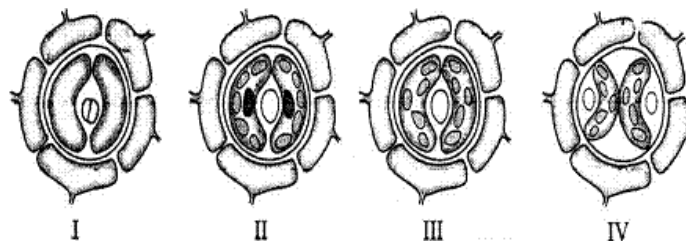
- A. Rheostat
B. Cell
C. Voltmeter
D. Ammeter

- Q. 29** The current flowing through a resistor connected in an electrical circuit and the potential difference developed across its ends are shown by the position of the pointer on the scales of the ammeter and voltmeter, respectively. The value of resistance of the resistor in ohm is (1)



- A. 25
B. 20
C. 15
D. 10
- Q. 30** In an experiment to verify Ohm's law, the rheostat is used to vary (1)
A. Voltage of the cell
B. Resistance of the circuit
C. Direction of current
D. Resistance of the resistor
- Q. 31** Which of the following devices would you use to maintain potential difference between two points of a conductor? (1)
A. A rheostat
B. A cell
C. A voltmeter
D. An ammeter
- Q. 32** Before the start of an experiment, the selected potted plant is kept in darkness for 2–3 days. This is done to (1)
A. Protect the plant
B. Destarch the plant
C. To cause wilting
D. To monitor growth

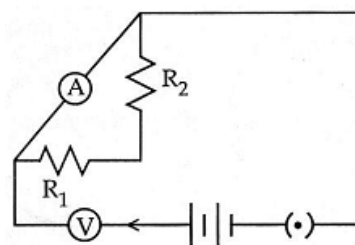
- Q. 33** Four students observed the epidermal peel of a leaf under a high-power microscope and made the sketches as below. The correct sketch would be (1)



- A. I
- B. II
- C. III
- D. IV

- Q. 34** What are the steps required to determine that light is essential for photosynthesis? (2)

- Q. 35** For carrying out the experiment to find the equivalent resistance of two resistors connected in series, a student sets up the circuit as shown. On further verification, he finds out that the circuit has one or more of the following faults. What are the fault/faults made by the student in the setup shown below? Mention the use of an ammeter and a voltmeter. (2)



- Q. 36** Below mentioned is the experimental setup which shows an iron nail being dipped in a copper sulphate solution. After keeping the iron nails in the copper sulphate solution for about 30 min, what is/are the correct observations? (2)

