Goa Board
Class X Science
Term 1
Sample Paper - 2

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. All questions are compulsory.
3. All questions of **Section A** and all questions of **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 in **one sentence**.
5. Question numbers **4** to **6** in **Section A** are **two marks** questions. These are to be answered in about **30 words** each.
6. Question numbers **7** to **18** in **Section A** are **three marks** questions. These are to be answered in about **50 words** each.
7. Question numbers **19** to **24** in **Section A** are **five marks** questions. These are to be answered in about **70 words** each.
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

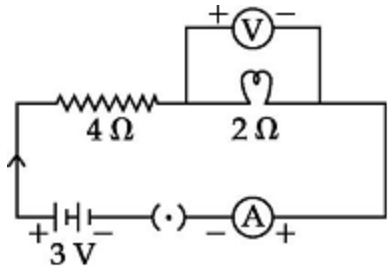
Q.1 Why are decomposition reactions called the opposite of combination reactions? (1)

Q. 2 What happens to the resistance of a conductor when its area of cross-section is increased? (1)

Q. 3 What is tidal energy? (1)

Q. 4 A solution of potassium chloride when mixed with silver nitrate solution forms an insoluble white substance. Write the chemical reaction involved and also mention the type of chemical reaction? (2)

Q. 5 Study the following electric circuit: (2)



Find the reading of (i) the ammeter and (ii) the voltmeter.

Q. 6 What are the two vital functions of the human kidney? (2)

Q. 7 List any three hazards of nuclear waste. (3)

Q. 8 Explain why (3)

(i) Digestion of food is a decomposition reaction.

(ii) All decomposition reactions are endothermic reactions.

(iii) A popping sound is produced when a burning candle is brought near the mouth of a test tube used in the electrolysis of water.

Q. 9 (3)

(i) What happens when a strip of lead metal is placed in a solution of copper chloride? Write the balanced chemical equation for the reaction along with the colour changes observed during the reaction.

(ii) What are precipitation reactions? Give one example of a precipitation reaction.

Q. 10 A solution of a substance 'X' is used for white washing. (3)

(a) Name the substance 'X' and write its formula.

(b) Write the reaction of the substance 'X' named in (i) above with water.

(c) Write the balanced equation for the following chemical reaction:

Barium chloride + Aluminium sulphate ⟶ Barium sulphate + Aluminium chloride

Q. 11 'Farmers are using excess of pesticides and fertilisers in their fields to increase crop production and enhance their profits. However, they are causing damage to the soil and to the environment'. Do you agree with this statement? Why should we avoid eating fruits and vegetables without washing them properly? (3)

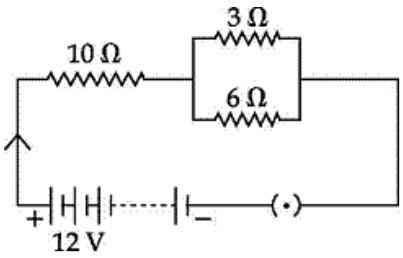
Q. 12 Describe the use of aluminium as a reducing agent for the reduction of metal oxides. Give the equations involved. (3)

Q. 13

(a) Oil- and fat-containing food items are flushed with nitrogen while packing them. Why?

(b) What is rust? What is its formula? (3)

Q. 14 Consider the circuit shown in the diagram. Find the current in a 3 Ω resistor. (3)



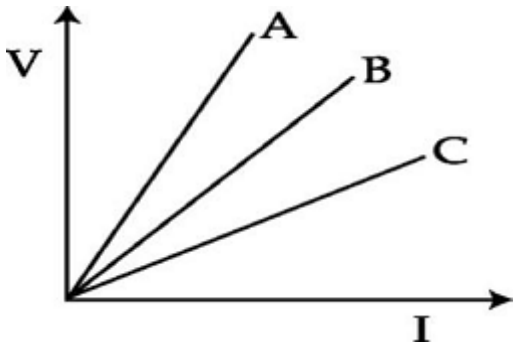
Q. 15 (3)

(a) Charcoal is a better fuel than wood. Why?

(b) How does a biogas plant help to reduce the problem of pollution?

Q. 16 A student performs an experiment with 4 cells and a resistance wire and an ammeter in series and observes that when the number of cells in the circuit is decreased, the value of current through the wire also decreases. Name the law which is involved in the experiment and write its mathematical form.

(a) The V–I graph for two resistors R_1 and R_2 and their series combination are shown in the figure below. Which graph represents the series combination of the other two? Give reason.



(3)

Q. 17 (3)

(a) Mention the factors on which the direction of force experienced by a current-carrying conductor placed in a magnetic field depend.

(b) Under what condition is the force experienced by a current-carrying conductor placed in a magnetic field maximum?

(c) A proton beam is moving along the direction of a magnetic field. What force is acting on the proton beam?

Q. 18 How are involuntary actions different from reflex actions? (3)

Q. 19 A sanitary worker uses a white chemical with the strong smell of chlorine gas to disinfect the water tank. (5)

(a) Identify the chemical compound.

(b) Write the chemical formula.

(c) Write the chemical equation for preparing it.

(d) Write any two of its uses.

Q. 20 Write the balanced chemical equation for the reactions taking place when (5)

(a) Zinc carbonate is calcinated.

(b) Zinc sulphide is roasted.

(c) Zinc oxide is reduced to zinc.

(d) Cinnabar is heated in air.

(e) Manganese dioxide is heated with aluminium powder.

Q. 21 Briefly explain an activity to plot the magnetic field lines around a straight current-carrying conductor. Sketch the field pattern for the same, specifying the current and field directions. What happens to this field? (5)

(a) If the strength of the current is decreased?

(b) If the direction of the current is reversed?

Q. 22 Briefly explain an activity to plot the magnetic field lines around a bar magnet. Sketch the field pattern for the same specifying field directions.

A region 'A' has magnetic field lines relatively closer than another region 'B'. Which region has a stronger field? Give reasons to support your answer. (5)

Q. 23 (5)

(a) Draw a sectional view of the human heart and label the following parts:

(i) Aorta

(ii) Pulmonary artery

(iii) Vena cava from the upper body

(iv) Left ventricle

(b) Why is double circulation of blood essential in human beings?

Q. 24 (5)

(a) Draw the structure of a neuron and label the following parts:
Nucleus, Dendrite, Cell body, Axon

(b) Name the part of the neuron

(i) Where information is acquired

(ii) Through which information travels as an electrical impulse

SECTION B

Q. 25 A student took solid quicklime in a China dish and added a small amount of water to it. He would hear (1)

A. A pop sound
B. A crackling sound
C. A hissing sound
D. No sound at all

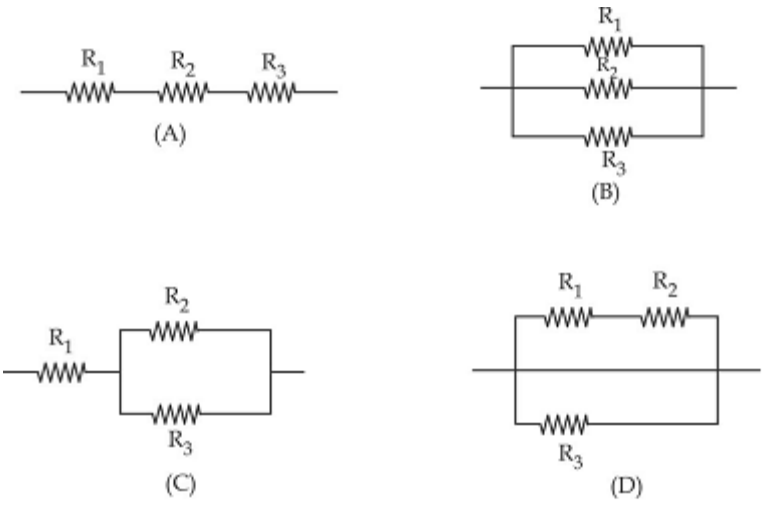
Q. 26 A student adds a few drops of universal indicator to an aqueous solution of sodium hydroxide. He would observe that the colour of the solution changes from (1)

A. Colourless to red
B. Colourless to blue
C. Red to blue
D. Blue to red

Q. 27 When blue litmus is added to a solution of acetic acid, it turns red. When excess of NaOH is added to the above solution, it will be observed that the mixture (1)

A. Remains red
B. Becomes colourless
C. Turns blue
D. Turns green

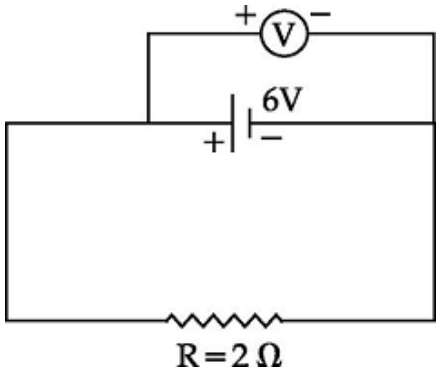
Q. 28 To determine the equivalent resistance of three resistors arranged in parallel, four students connected the resistors as shown in Figures A, B, C and D. (1)



Which one is correct?

A. A
B. B
C. C
D. D

Q. 29 When a student connects a voltmeter across the terminals of a battery, the voltmeter measures 6 V. If he connects a resistance of 2 Ω across the terminals of the battery as shown in the figure, then the current flowing through this resistance (R) must be (1)



A. 2 A
B. 3 A
C. 4 A
D. 6 A

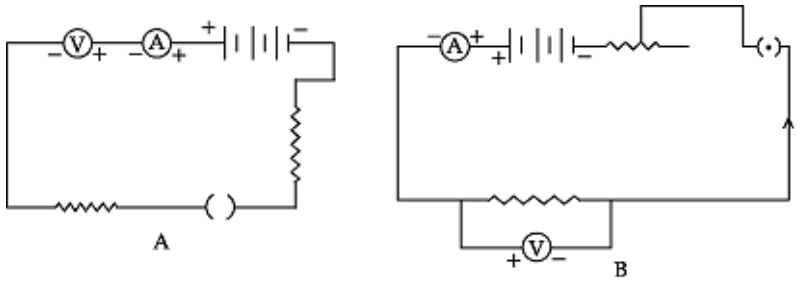
Q. 30 The range of a voltmeter is 0 to 2.0 V. If it has 20 divisions between the 0 mark and the 0.5 V mark, the least count is (1)

A. 0.020 V
B. 0.025 V
C. 0.050 V
D. 0.250 V

Q. 31 Which one of the following precautions is NOT to be taken while conducting the experiment to determine the equivalent resistance of two resistors connected in series? (1)

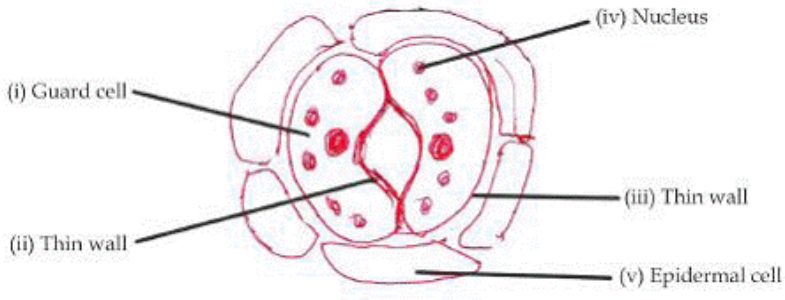
A. Get the circuit diagram checked by your teacher before passing current.
B. Connect the +ve terminal of the ammeter to the +ve terminal of the battery.
C. Wait at least for 30 seconds after closing the key.
D. Take care that the battery is not short circuited.

Q. 32 Which of the following experimental setups is correct for the verification of Ohm's law? (1)



A. A
B. B
C. Both A and B
D. Neither A nor B

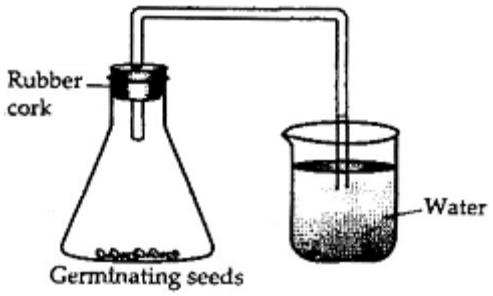
Q. 33 In the given diagram of stomatal apparatus, which parts are correctly labelled? (1)



A. (i) and (v)
B. (ii) and (v)
C. (iv) and (ii)

D. (v) and (iv)

Q. 34 The following experiment was set up to show that a gas is given out during respiration. (2)



(i) Why is there no rise in the level of water in the beaker?

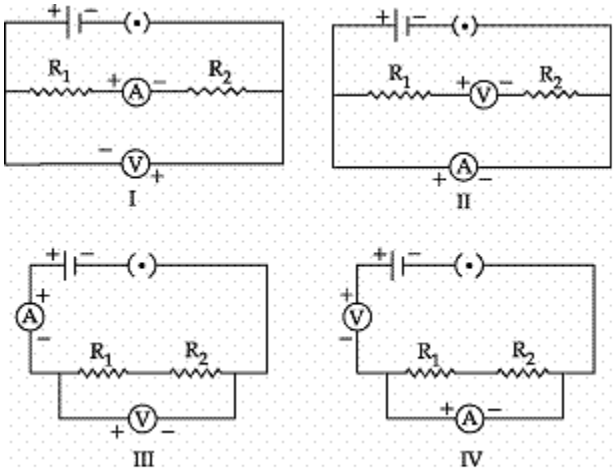
A. Germinating seeds have not been immersed in water in the flask.
B. Instead of limewater, water is kept in the beaker.
C. The cork on the flask is made of rubber.
D. There is no substance in the flask to absorb the gas given out by the seeds.

(ii) Which substance should have been present in the flask? What is its role?

Q. 35 What happens when an iron nail is kept immersed in copper sulphate solution? Support your answer with a balanced chemical equation. (2)

Q. 36

(i) In the experiment to determine equivalent resistance of two resistors R_1 and R_2 in series, which of the circuit diagrams show the correct way of connecting the voltmeter? (2)



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

(ii) How will you correct the Figure IV?