

Sample Question Paper II

Time: 1 ½ hours

Maximum Marks: 20

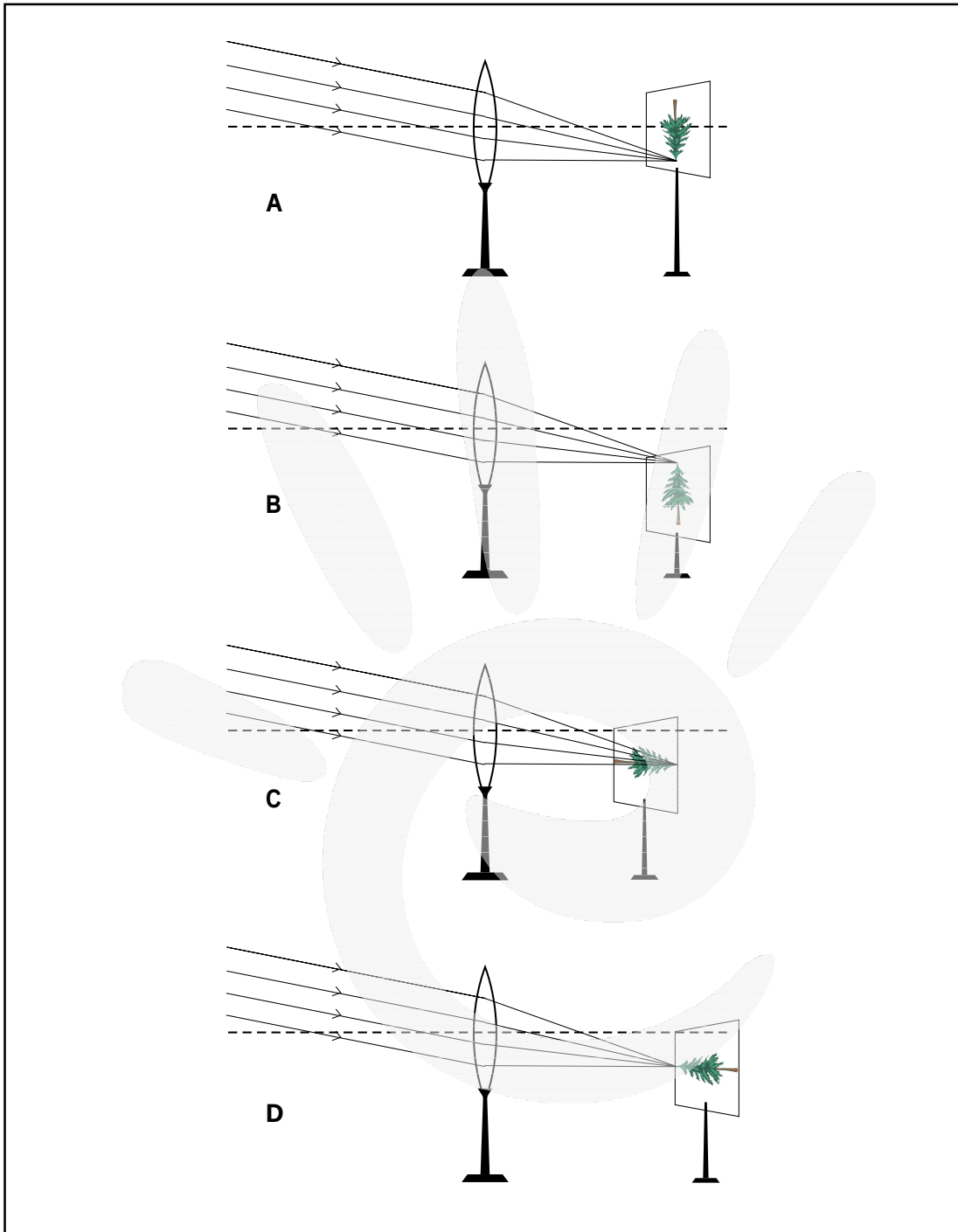
INSTRUCTIONS

1. Attempt all questions
2. There are 30 multiple choice questions in total. Only one of the options in every question is correct.
3. The question paper consists of two parts – Section A and Section B. Each of the 20 questions in Section A carries 0.5 mark and each of the 10 questions in Section B carries 1.0 mark.

SECTION - A

1. A student tested the pH of distilled water and found that the colour of the pH paper changed to green. He checked the pH again after dissolving a pinch of common salt in it. The colour of the pH paper this time was
 - (a) green.
 - (b) yellow.
 - (c) red.
 - (d) blue.
2. Bottle A contains oxalic acid and bottle B contains sodium carbonate solution. When pH paper is dipped in each of the solutions, the colour seen in A and B respectively be
 - (a) orange, blue.
 - (b) blue, orange.
 - (c) green, blue.
 - (d) orange, green.
3. The zinc metal used in the laboratory for doing experiments is available in the form of
 - (a) filings.
 - (b) strips.
 - (c) granules.
 - (d) pellets.

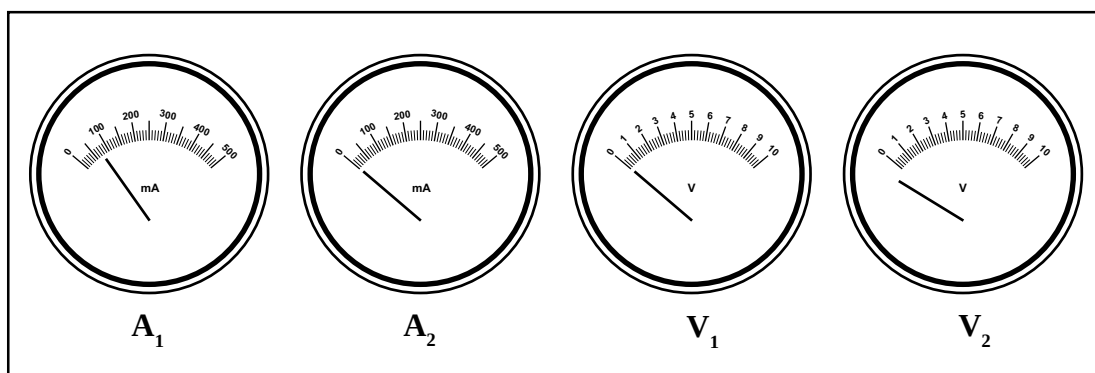
4. Parallel rays from a distant tree incident on a convex lens form an image on the screen.



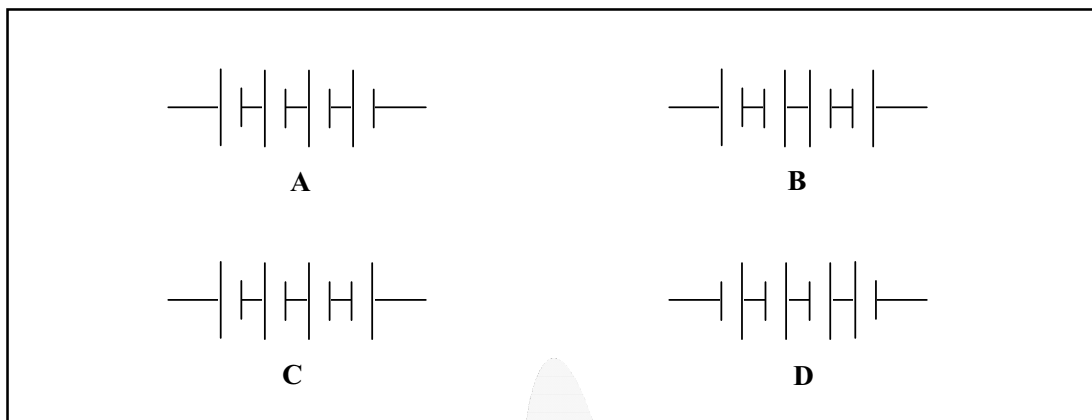
The diagram correctly showing the image of the tree on the screen is

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

5. In an experiment, the image of a distant object formed by a concave mirror is obtained on a screen. To determine the focal length of the mirror, you need to measure the distance between the
- mirror and the screen.
 - mirror and the object.
 - object and the screen.
 - mirror and the screen and also between the object and the screen.
6. In the experiment to trace the path of a ray of light through a rectangular glass slab using pins P1, P2, P3 and P4, four students did the following
A looked at heads of P1 and P2 while placing P3, and heads of P1, P2 and P3 while placing P4
B: looked at feet of P1 and P2 while placing P3, and feet of P1, P2 and P3 while placing P4
C: looked at heads of P1 and P2 while placing P3, and feet of all the pins while placing P4
D: looked at feet of P1 and P2 while placing P3, and heads of all the pins while placing P4
The correct procedure is that of student
- A.
 - B.
 - C.
 - D.
7. The normal positions of the pointers of the two ammeters A_1 and A_2 , and two voltmeters V_1 and V_2 available in the laboratory were as shown. For an experiment to study the dependence of the current on the potential difference across a resistor, the student should select
- ammeter A_1 and voltmeter V_1 .
 - ammeter A_2 and voltmeter V_1 .
 - ammeter A_1 and voltmeter V_2 .
 - ammeter A_2 and voltmeter V_2 .



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

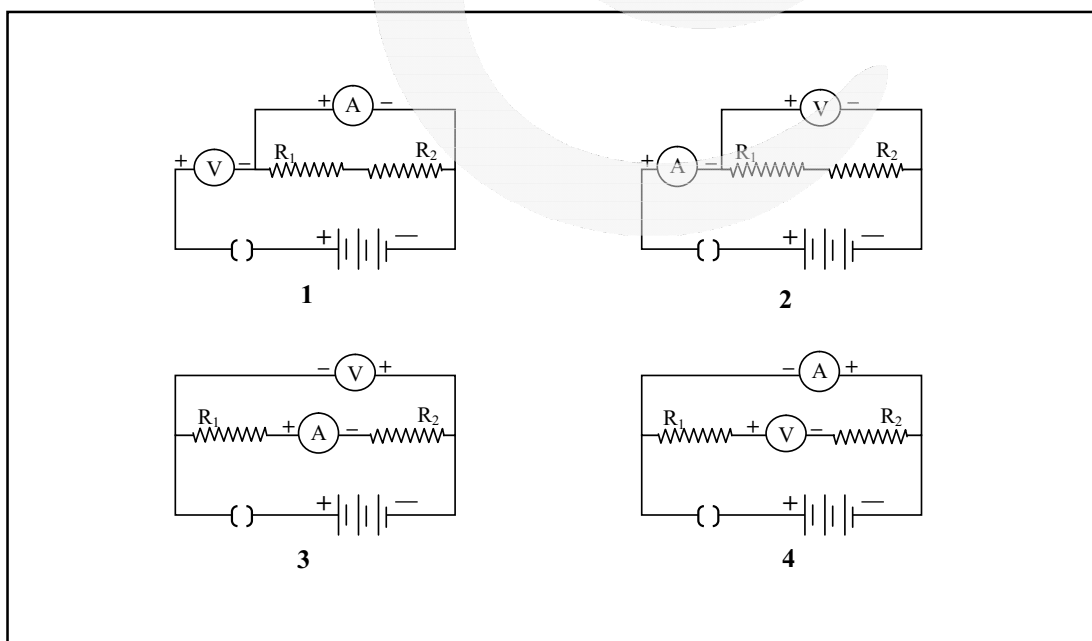


The correct way of connecting these cells is shown in figure

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

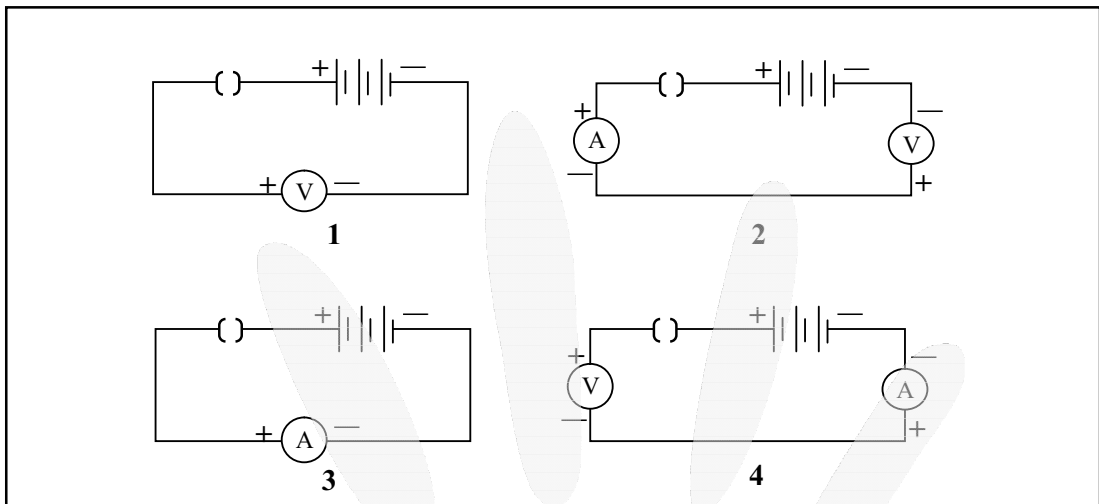
9. The correct way of connecting the ammeter and voltmeter with a series combination of two resistors in a circuit for finding their equivalent resistance, is shown in diagram

- (a) 1.
- (b) 2.
- (c) 3.
- (d) 4.

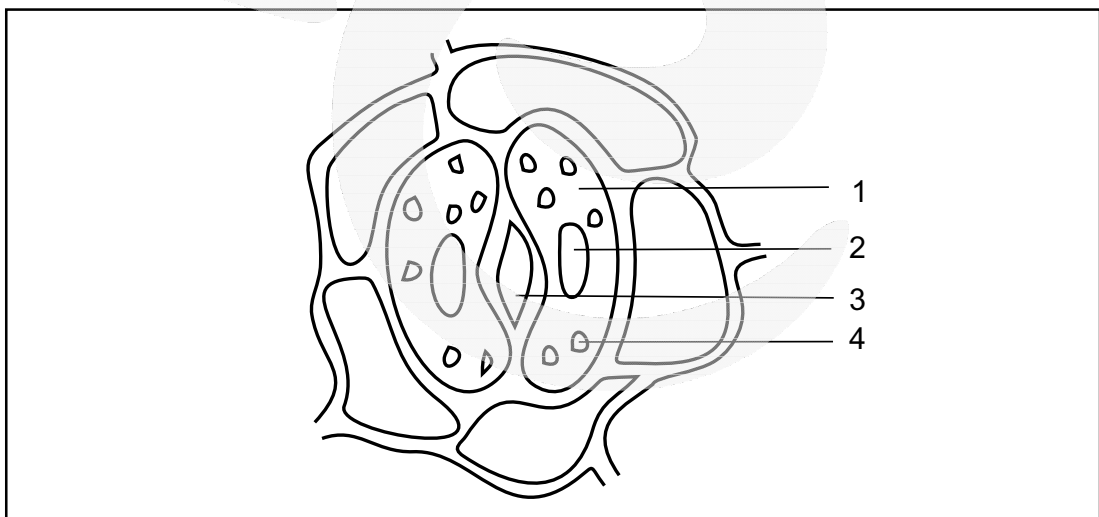


10. On plugging the key, the voltmeter/ ammeter is likely to be damaged in the circuit shown in figure

- (a) 1.
- (b) 2.
- (c) 3.
- (d) 4.



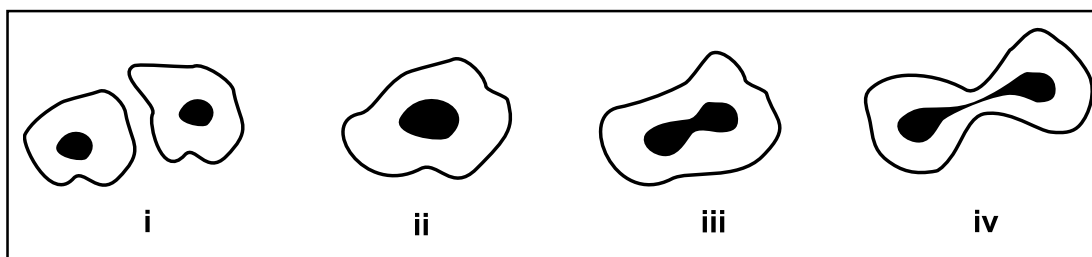
11. A student draws the following sketch of stomatal apparatus and numbers the parts to label them.



The chloroplast is denoted by

- (a) 1.
- (b) 2.
- (c) 3.
- (d) 4.

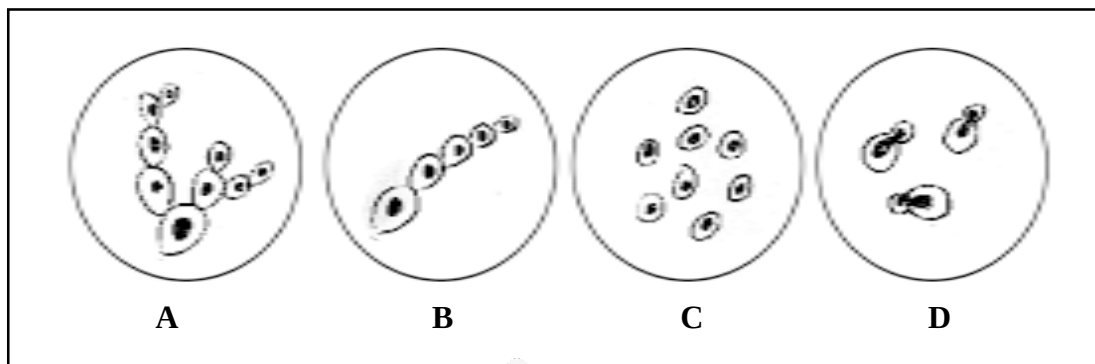
12. The following figures illustrate binary fission in Amoeba in an incorrect sequence.



The correct sequence is

- (a) (i), (iii), (iv), (ii).
 - (b) (ii), (iii), (iv), (i).
 - (c) (iv), (iii), (ii), (i).
 - (d) (iii), (iv), (ii), (i).
13. The teacher instructed a student to place a healthy potted shoe flower plant in a dark room for 24 hours prior to an experiment on photosynthesis. The purpose of placing it in a dark room is
- (a) to increase the intake of CO_2 .
 - (b) to activate the chloroplasts in the leaves.
 - (c) to de-starch the leaves.
 - (d) to denature the enzymes in the leaves.
14. In an experiment to show that sunlight is necessary for photosynthesis, the leaf is boiled in alcohol for a few minutes using a water bath. It is essential because
- (a) alcohol is highly volatile.
 - (b) steam from the water bath heats the leaf rapidly.
 - (c) steam from the water bath dissolves the chlorophyll.
 - (d) alcohol is flammable.
15. A student soaked 10 g of raisins in 50 mL of distilled water in two beakers A and B each. She maintained beaker A at 25°C and beaker B at 50°C . After an hour, the percentage of water absorbed will be
- (a) the same in both A and B.
 - (b) more in A than in B.
 - (c) more in B than in A.
 - (d) exactly twice as much in B as in A.

16. The following are the sketches made by some students.

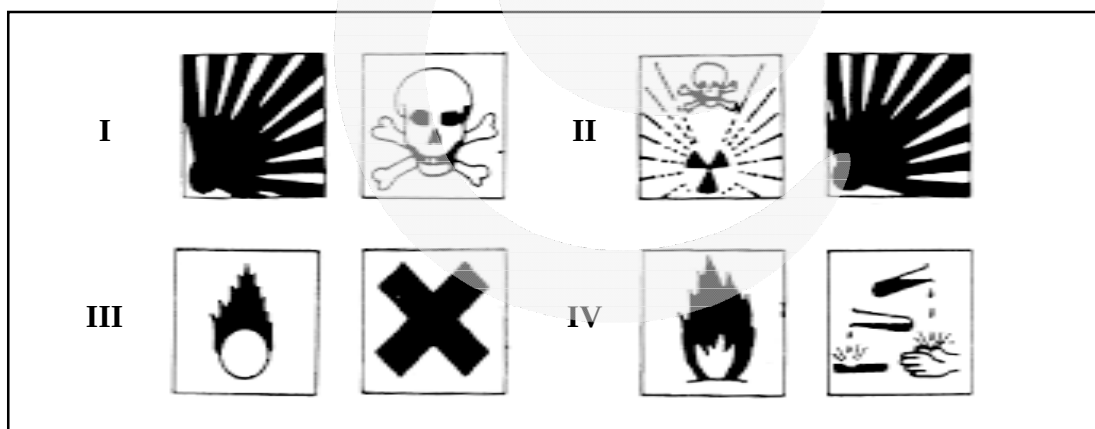


The sketch not illustrative of budding in yeast is

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

17. The pair of safety symbols you notice on the bottles of commercial acetic acid available in the laboratory, is shown in

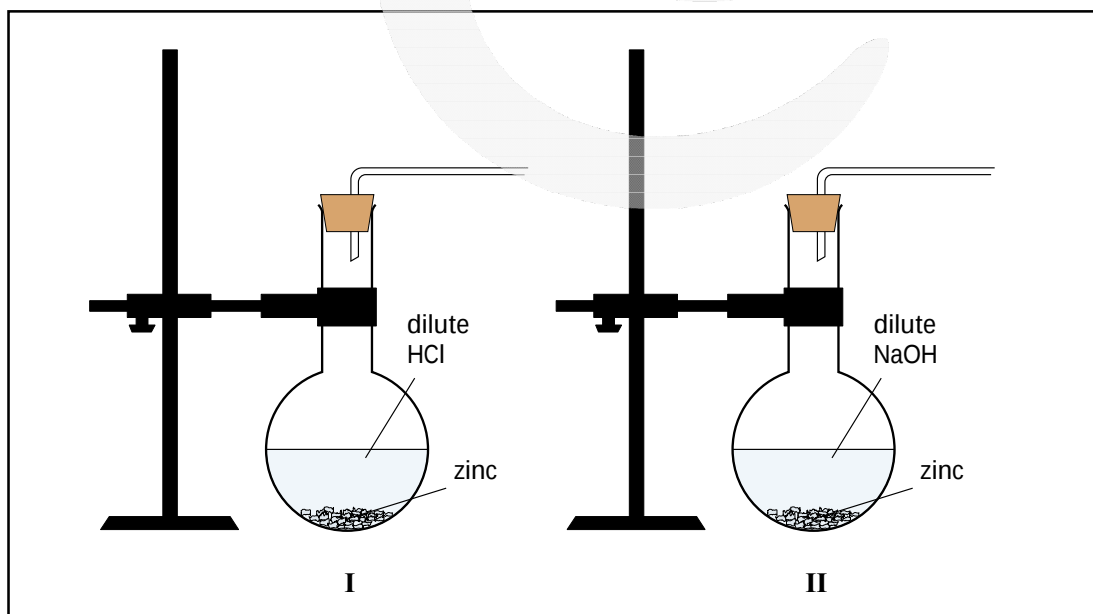
- (a) I.
- (b) II.
- (c) III.
- (d) IV.

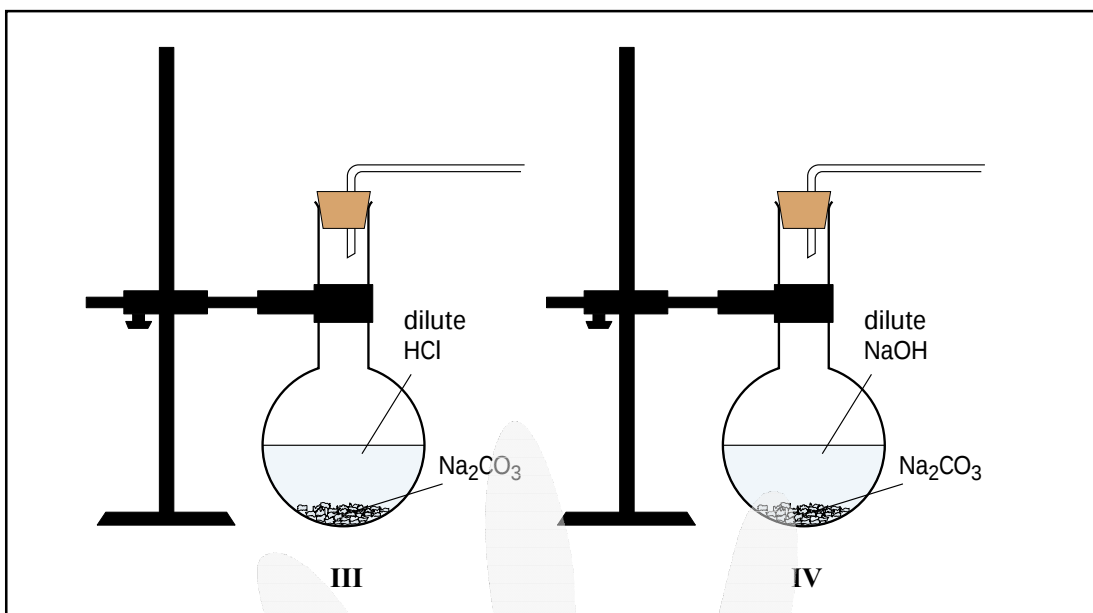


18. When you place an iron nail in copper sulphate solution, the reddish brown coating formed on the nail is
- soft and dull.
 - hard and flaky.
 - smooth and shining.
 - rough and granular.
19. When you place an iron strip in the solution of copper sulphate, the time required for the colour of the solution to change from blue to green is about
- a second.
 - an hour.
 - 8 hours.
 - 24 hours.
20. On adding sodium bicarbonate to acetic acid, you immediately
- observe strong effervescence.
 - hear hissing sound.
 - get pungent smell.
 - notice formation of bubbles.

SECTION - B

21. Four experimental set ups are shown below.

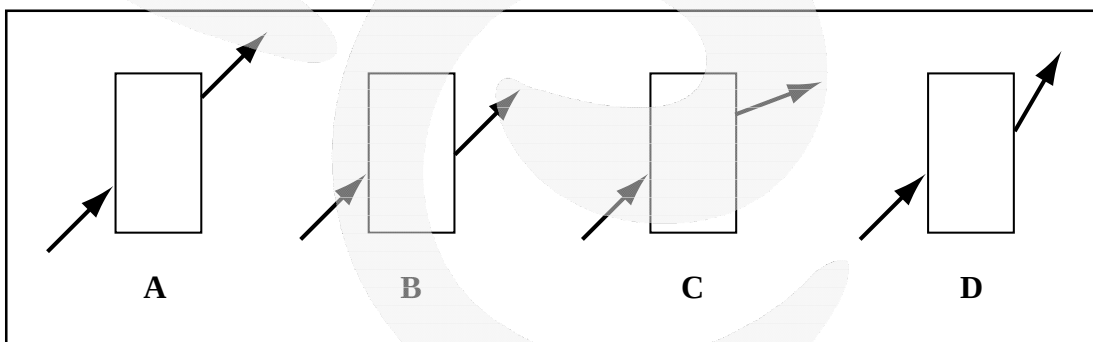




The set ups that would result in a rapid evolution of gas would be

- (a) I and III.
- (b) II and IV.
- (c) I and II.
- (d) III and IV.

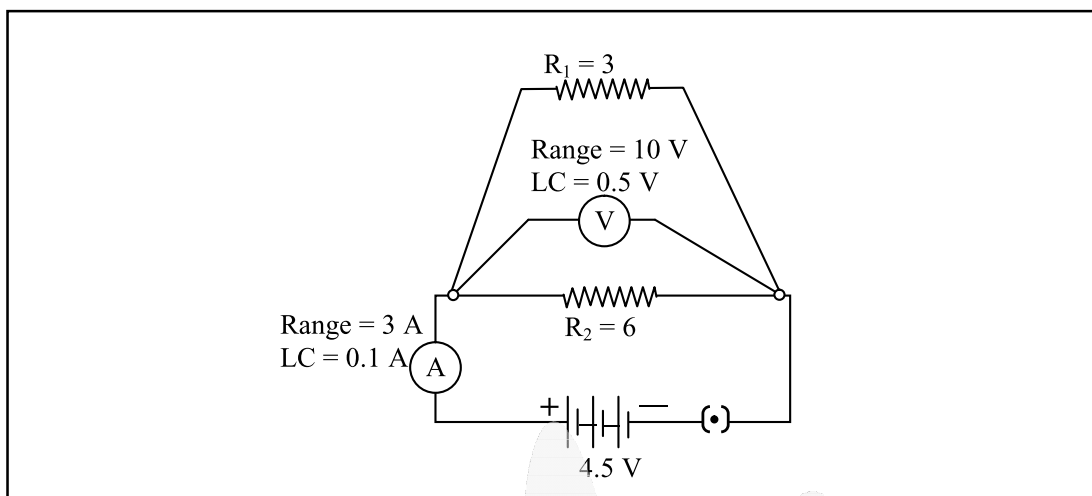
22. Four students showed the following traces of the path of a ray of light passing through a rectangular glass slab.



The trace most likely to be correct is that of student

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

23. The voltmeter, ammeter and resistance in the circuit shown have been checked and found to be correct. On plugging the key, the voltmeter reads 4.5 V, but the ammeter reads 1.5 A.



This could most likely be because the wires joined to

- (a) the resistor R_1 are loose.
- (b) the resistor R_2 are loose.
- (c) both the resistors R_1 and R_2 are loose.
- (d) the ammeter terminals are loose.

24. The following apparatus is available in a laboratory:

Battery : adjustable from 0 to 4.5 Volt

Resistors : $3\ \Omega$ and $6\ \Omega$

Ammeters : A1 of Range 0 to 3 A; Least Count 0.1 A

A2 of Range 0 to 1 A; Least Count 0.05 A

Voltmeters : V1 of Range 0 to 10 V; Least Count 0.5 V

V2 of Range 0 to 5 V; Least Count 0.1 V

The best combination of voltmeter and ammeter for finding the equivalent resistance of the resistors in series would be

- (a) ammeter A1 and voltmeter V1.
- (b) ammeter A1 and voltmeter V2.
- (c) ammeter A2 and voltmeter V1.
- (d) ammeter A2 and voltmeter V2.

25. In an experiment on photosynthesis, a student fixed a strip of black paper on the dorsal surface of a Bougainvillea leaf in the morning. In the evening she tested the leaf for starch. The result was

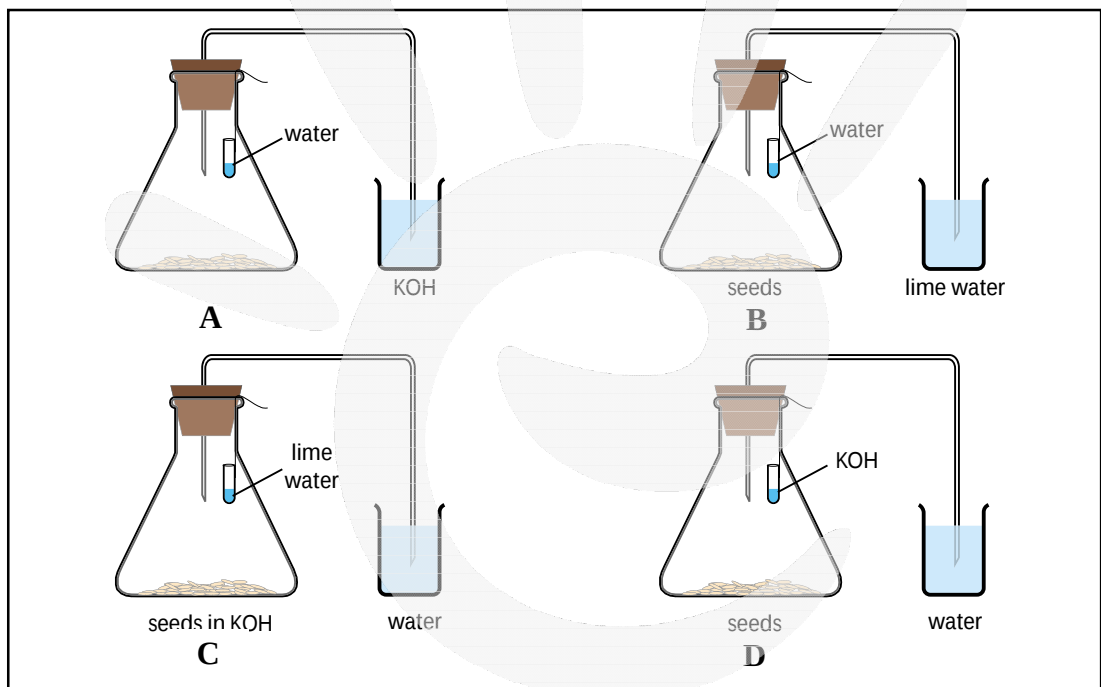
- (a) the dorsal surface of the leaf was white but the ventral surface turned blue.
- (b) both the surfaces of the covered portion remained white.
- (c) the entire leaf turned blue black.
- (d) the entire leaf remained white.

26. Given below are the steps in the preparation of a temporary mount of a stained leaf peel.

- (i) Cover the material with the cover slip.
 - (ii) Transfer the stained peel to the clean glass slide and add a drop of glycerine.
 - (iii) Remove the peel from the ventral surface of the leaf.
 - (iv) Drop it in the water in a petri dish and add a drop of safranin stain.
- The correct sequence of steps is

- (a) (iii), (iv), (ii), (i).
- (b) (i), (ii), (iii), (iv).
- (c) (ii), (iii), (iv), (i).
- (d) (iii), (iv), (i), (ii).

27. After performing the experiment to show that germinating seeds give out carbon dioxide during respiration, students drew the following diagrams.



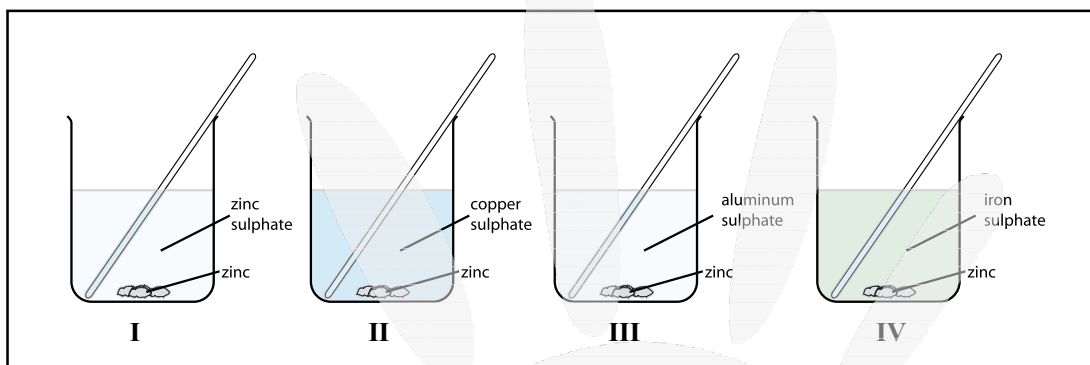
The correct labelled diagram is

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

28. A student sets up the apparatus for the experiment to show that CO_2 is released during respiration. After 2 hours, he would observe

- (a) KOH turning milky.
- (b) water level rising in the bent tube in the beaker.
- (c) water level decreasing in the bent tube in the beaker.
- (d) water turning turbid in the beaker.

29. Zinc granules were added to zinc sulphate, copper sulphate, aluminum sulphate and iron sulphate solutions as shown below. You would observe the deposition of metal on zinc in beakers



- (a) I and III.
- (b) II and IV .
- (c) I and II.
- (d) III and IV.

30. Among the four sets of apparatus given below, the correct one to prepare sulphur dioxide gas is

Set I	Set II	Set III	Set IV
Hard glass test tubes 2, double holed rubber cork 1, thistle funnel 1, delivery tube 1, spirit lamp 1	Round bottomed flask 1, gas jar 1, double holed rubber cork 1, thistle funnel 1, delivery tube 1, spirit lamp 1	Conical flask 2, delivery tube 1, thistle funnel 1, single holed rubber cork 2, spirit lamp 1	Conical flask 1, beaker 1, funnel 1, delivery tube 1, double holed rubber cork 1, spirit lamp 1

- (a) Set I
- (b) Set II
- (c) Set III
- (d) Set IV

Question-wise Analysis and Scoring Key for Sample Paper II

Q.No	Correct choice	Explanation/ Remarks
1.	(a)	The pH paper in neutral medium gives green colour.
2.	(a)	The colour of pH paper is orange in acidic medium while it is blue in basic medium.
3.	(c)	Zinc is available in the form of granules in the laboratory.
4.	(b)	The image of the (vertical) tree on the screen will be an inverted vertical image.
5.	(a)	The focal length of the lens equals the distance between the lens and the (sharp) image obtained on the screen.
6.	(b)	It is difficult to fix the pins vertically and we can have a proper alignment of the feet of the pins.
7.	(b)	We should select instruments without any zero error.
8.	(a)	The four cells must be connected in series to get a total voltage of $4 \times 1.5 = 6.0\text{V}$. For this, the negative of the first cell must be connected to the positive of the second cell, and so on, leaving the positive of the first cell and negative of the fourth cell to be connected to the circuit.
9.	(b)	The ammeter must be connected in series, between the battery and the series combination of the two resistors, and the voltmeter should be put in parallel across the series combination of the two resistors. All the polarities must also be correct.
10.	(c)	The ammeter, being a very low resistance device, would draw a very large current when connected directly to the battery. This burns out/ damages its coil.
11.	(d)	No. 4 is chloroplast.
12.	(b)	Nucleus divides first and then the cytoplasm, when Amoeba undergoes fission.
13.	(c)	24 hours to shunt starch from the leaves to the rest of the plant. De-starched leaf will show the colour change.
14.	(d)	Water bath is a must to boil the leaf in ethanol as a precaution.
15.	(c)	Absorption is facilitated in warm water.
16.	(c)	Buds appear as protuberances.
17.	(d)	Acetic acid is flammable and corrosive.
18.	(a)	The freshly deposited copper is soft and dull.
19.	(b)	Metal deposition is not very fast and takes some time.
20.	(a)	The reaction between acetic acid and sodium bicarbonate to produce carbon dioxide is very fast.
21.	(a)	The reactions between (i) Zinc and dil. HCl and (ii) dil. HCl and Na_2CO_3 are fast whereas the reaction between Zn and NaOH is slow.

22.	(b)	The emergent ray, from the rectangular glass slab, is parallel to the incident ray and is laterally displaced to the left (or lower side) of the incident ray.
23.	(b)	The ammeter reading being 1.5 A ($=4.5\text{V}/3$), only the three ohm resistor is connected to the circuit while the other six ohm resistor, because of its loose connection, is not part of the circuit at all.
24.	(d)	The overall range of the voltage is from 0 to 4.5V and that of current is from 0 to $4.5/9\text{ A} = 0.5\text{ A}$. We, therefore, prefer instruments that cover these ranges and also have a better least count.
25.	(c)	In the diffused light reaching the ventral surface, photosynthesis takes place, and so the whole leaf responds to starch test.
26.	(a)	The sequence is important to get the best stained material for the temporary mount.
27.	(d)	Proper labelling of KOH in the suspended test tube, water in the beaker and seeds in the conical flask.
28.	(b)	CO ₂ released is absorbed by KOH. To fill the partial vacuum created in the conical flask, water rises in the bent tube.
29.	(b)	Zinc displaces iron and copper from their salt solutions.
30.	(b)	The apparatus required for the preparation and collection of SO ₂ is given in Set II only.