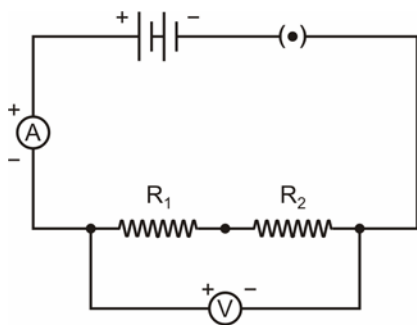
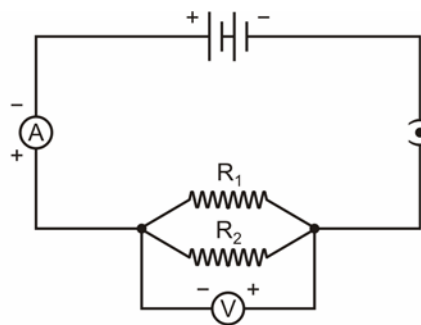


Additional exemplary multiple-choice question for assessment of practical-skills in science and technology – class X

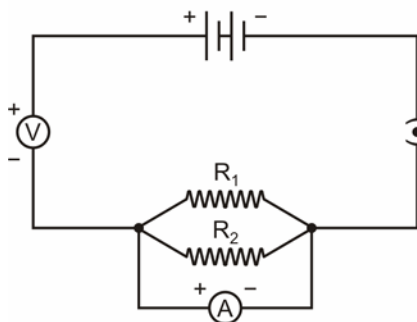
Q.1: Following Circuits were drawn by four students, to determine the equivalent resistance of two resistor when connected in parallel. The correct circuit is drawn by the student.



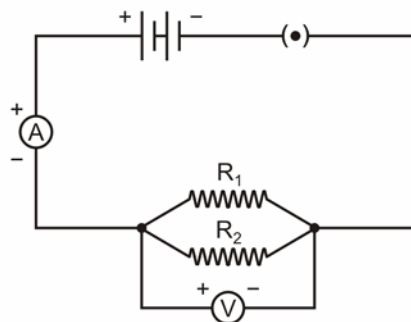
(I)



(II)



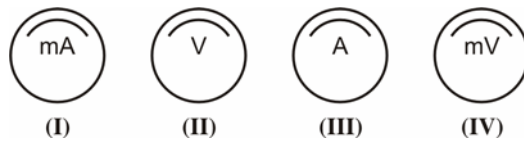
(III)



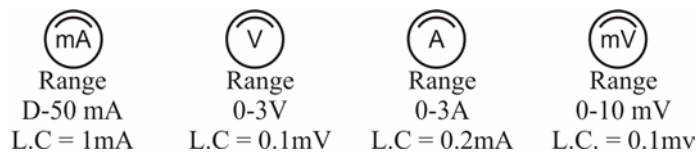
(IV)

- (1) I
- (2) II
- (3) III
- (4) IV

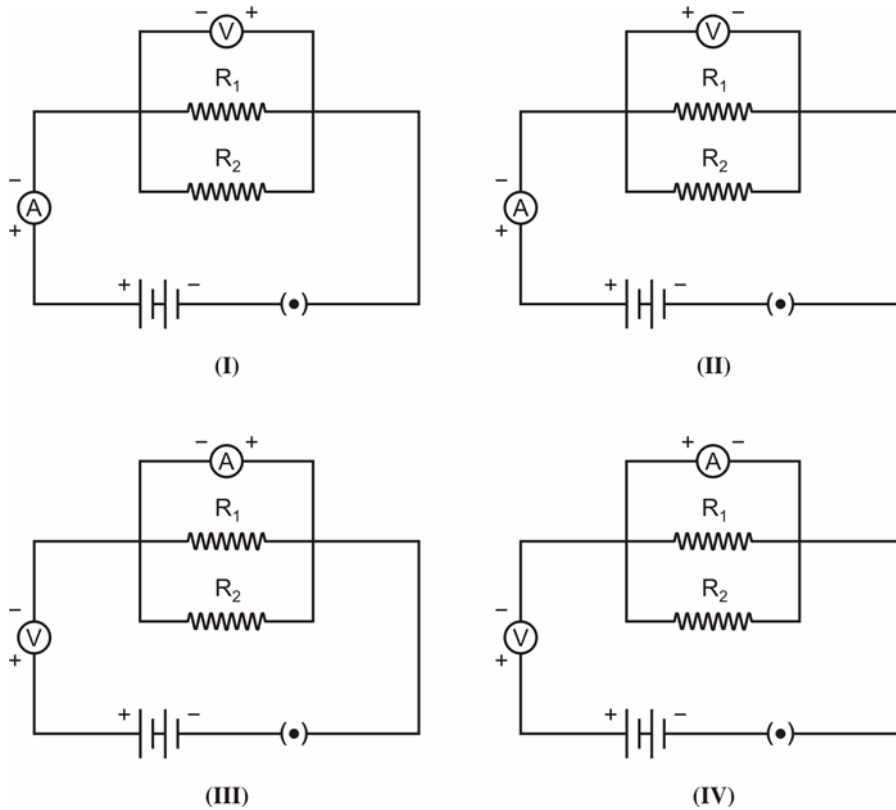
Q.2: Four different measuring instruments are shown below. Out of these, the instrument that can be used for measuring current is/are the instruments labeled as



- (1) I and III with I more reliable of the two
 (2) I and IV with IV more reliable of the two
 (3) II and III with II more reliable of the two
 (4) II and IV with IV more reliable of the two

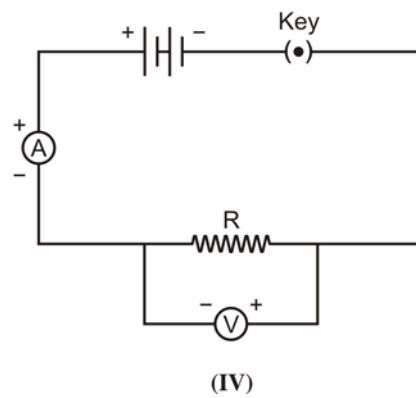
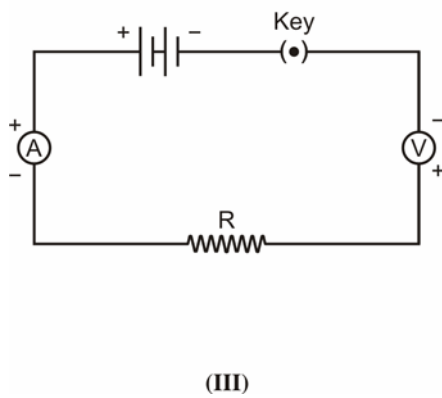
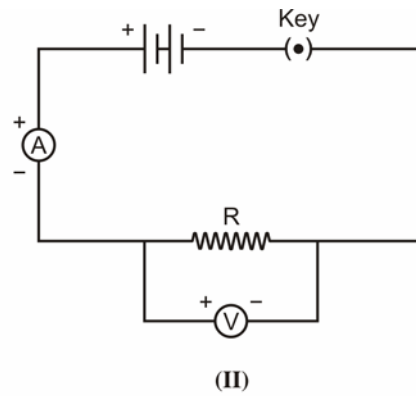
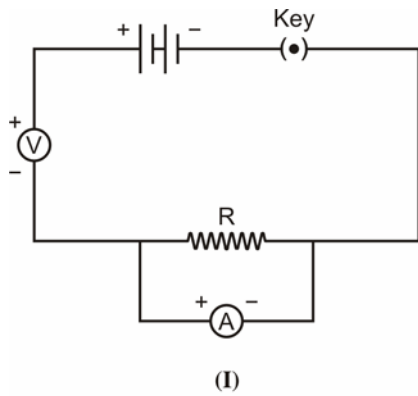


Q.3: In the experiment on finding the equivalent resistance of two resistors, connected in parallel, the voltmeter and the ammeter have been correctly connected in circuit.



- (1) I Only
 (2) II Only
 (3) III Only
 (4) IV Only

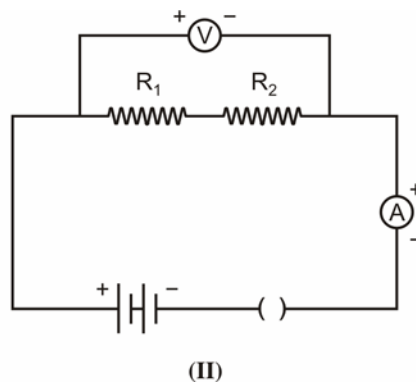
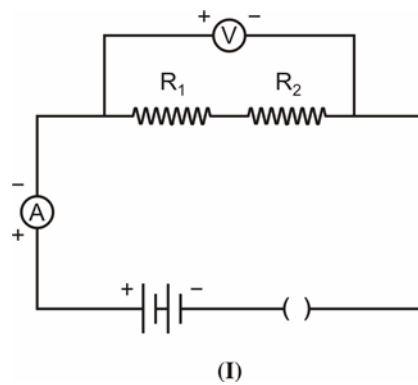
Q.4: While performing the experiment on studying the dependence of current (I) on the potential difference (V) across a resistor, four students I, II, III and IV set up the circuit as shown.



The correct result will be obtained by the student

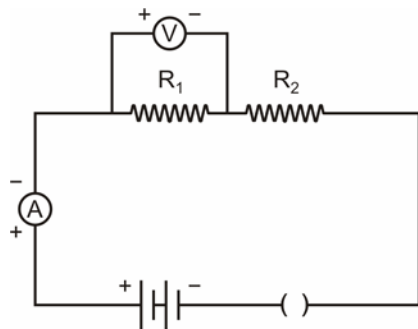
- (1) I
- (2) II
- (3) III
- (4) IV

Q.5: In the experiment on finding the equivalent resistance of two resistors, connected in series, the ammeter is correctly connected in.

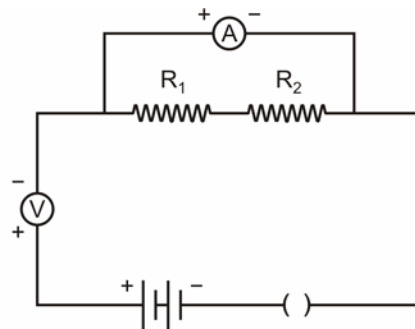


- (1) circuit (I) only.
- (2) circuit (II) only.
- (3) both circuits (I) and (II).
- (4) neither of the two circuits.

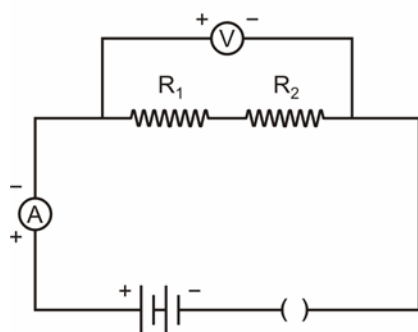
Q.6: In the experiment on finding the equivalent resistance of two resistors, connected in series, four students connected the voltmeter and the ammeter in the manners shown below.



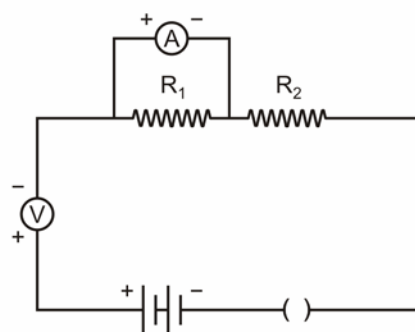
(I)



(II)



(III)

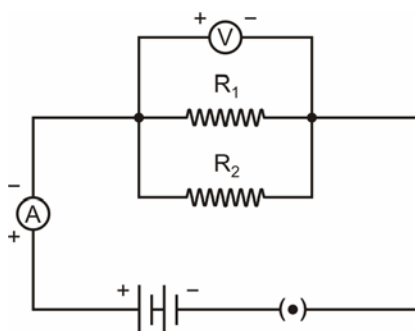


(IV)

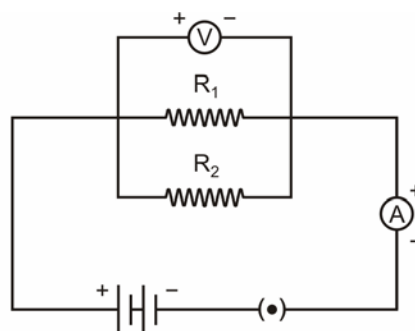
The correct connections have been made by student

- (1) I
- (2) II
- (3) III
- (4) IV

Q.7: In the experiment on finding the equivalent resistance of two resistors, connected in parallel, two students connected the ammeter in two different ways as shown in given circuits I & II. The ammeter has been correctly connected in



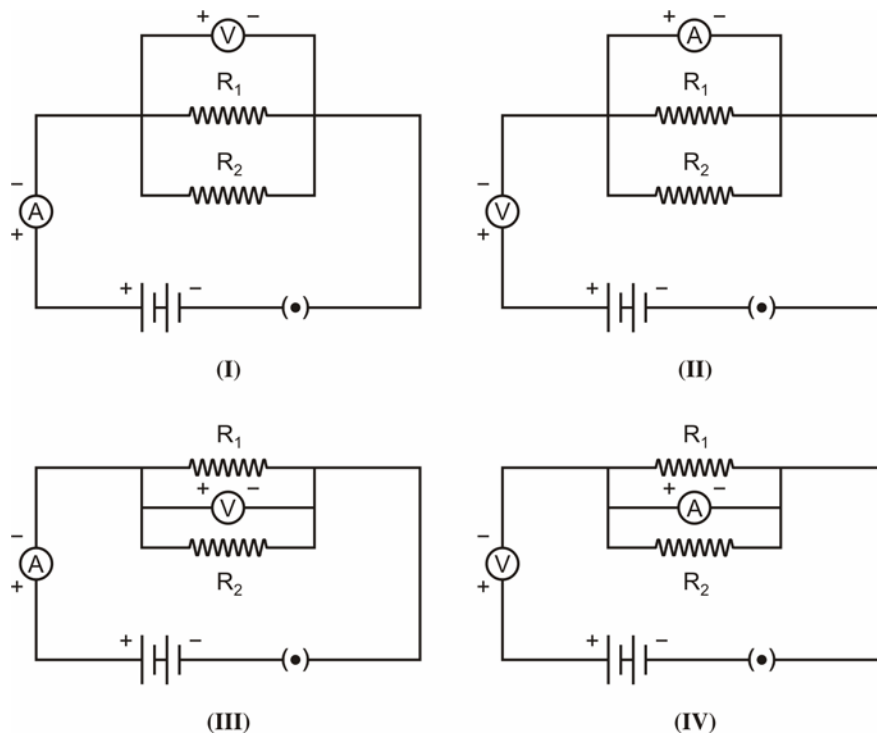
(I)



(II)

- (1) circuit I only
- (2) circuit II only
- (3) both the circuits I and II
- (4) neither of the two circuits.

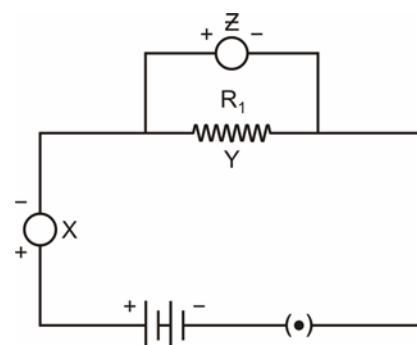
Q.8: In the experiment on finding the equivalent resistance of two resistors, connected in parallel, the voltmeter has been correctly connected in



- (1) circuit I only
- (2) circuit II only.
- (3) both circuits I and III
- (4) both circuits II and IV

Q.9: A student draws the following circuit diagram for the experiment on studying the dependence of current (I) on p.d. (V) across a resistor. The parts labeled X, Y and Z, in this diagram are, respectively,

- 1) a resistor, a voltmeter and a milliammeter.
- 2) a voltmeter, a resistor and a milliammeter.
- 3) a milliammeter, a resistor and a voltmeter.
- 4) a resistor, a milliammeters and a voltmeter.



Q.10: In the experiment on studying the dependence of current (I) on potential difference (V), three students tabulated their observations as given below :

I	II	III
L.C. of milliammeter = 2mA	L.C. of milliammeter = 2mA	L.C. of milliammeter = 2mA
L.C. of voltmeter = 0.1 V	L.C. of voltmeter = 0.1 V	L.C. of voltmeter = 0.1 V

S. No.	Reading of the	
	Voltmeter	Milliammeter
	(mV)	(in mV)
1	1	20
2	2	38
3	3	60
4	4	80

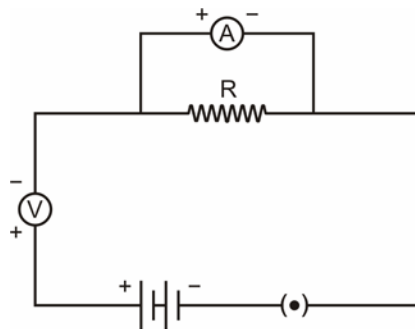
S. No.	Reading of the	
	Voltmeter	Milliammeter
	(mV)	(in mV)
1	1	20
2	2	39
3	3	61
4	4	80

S. No.	Reading of the	
	Voltmeter	Milliammeter
	(mV)	(in mV)
1	1.0	20
2	2.0	40
3	3.0	62
4	4.0	80

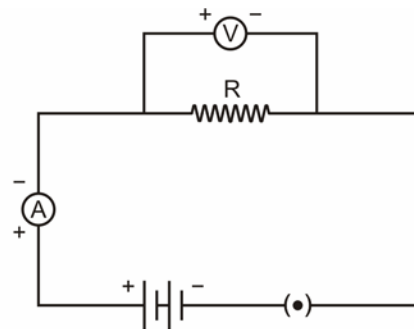
The reporting of the observation is best for

- (1) student I
- (2) student II
- (3) student III
- (4) students I and II

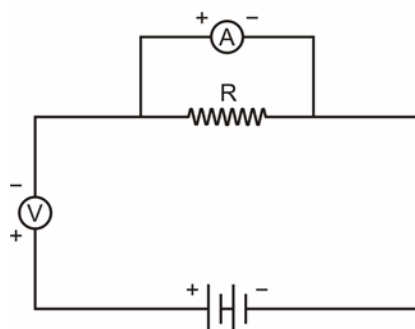
Q.11: In the experiment on studying the dependence of current (I) on potential difference (V), four students set up their circuits as shown below



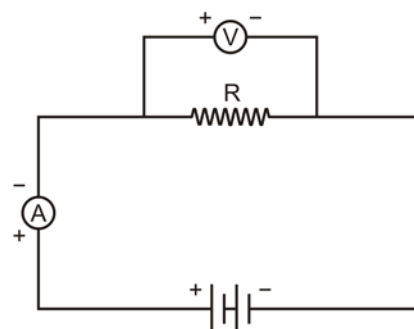
(I)



(II)



(III)

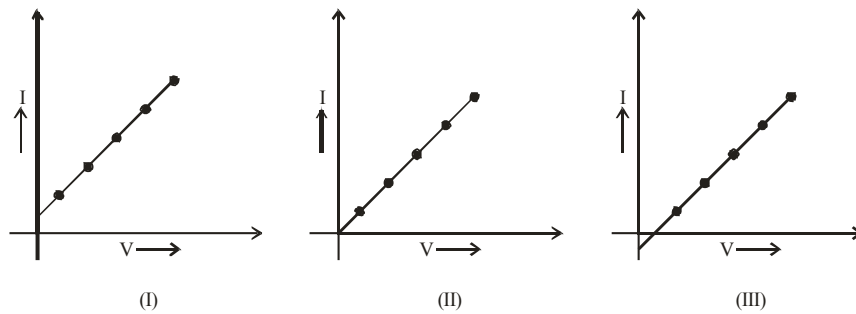


(IV)

The best set up is that of

- (1) student I
- (2) student II
- (3) student III
- (4) student IV

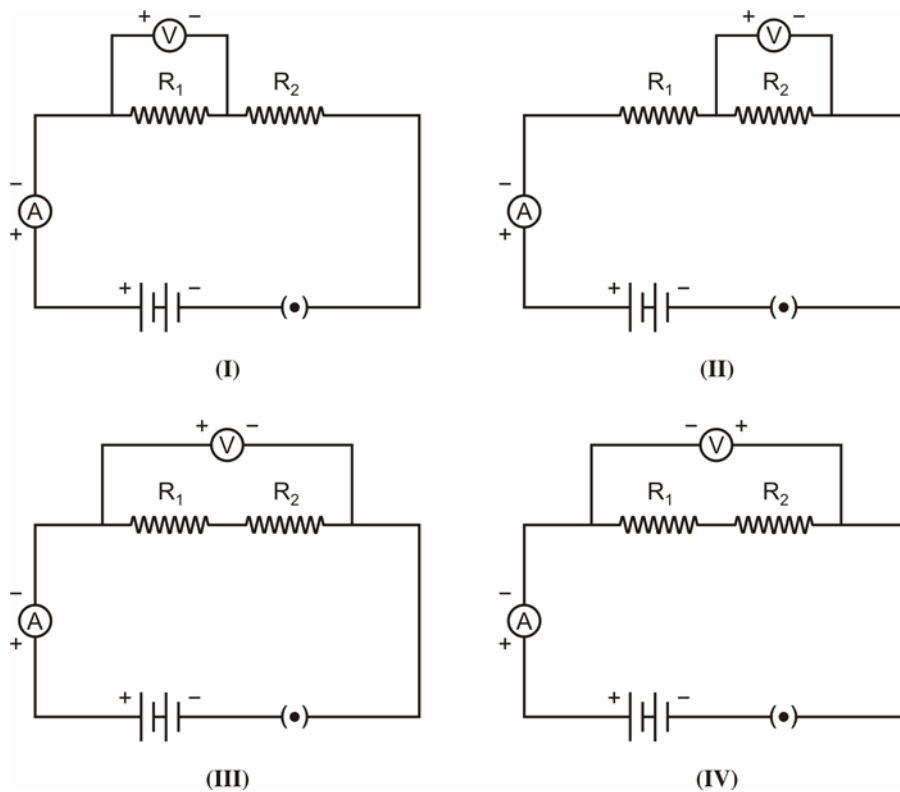
Q.12: In the experiment on studying the dependence of current (I) on the potential difference (V), three students plotted the following graphs between (V) and (I) as per their respective observations.



The observations, likely to be correct, are those of

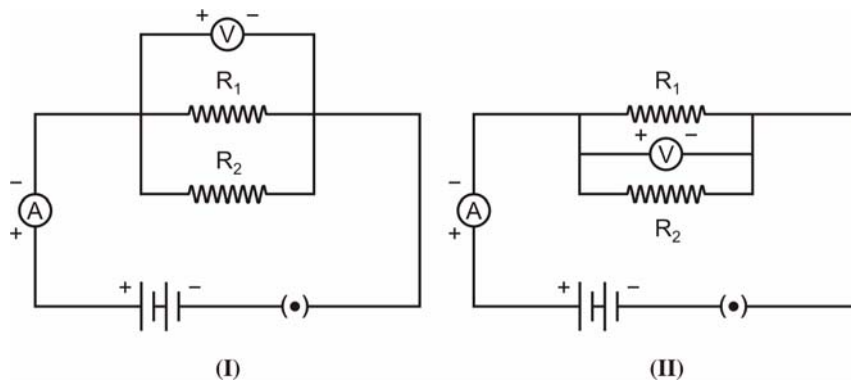
- (1) student I only.
- (2) student II only.
- (3) student III only.
- (4) all the three students.

Q.13: In the experiment on finding the equivalent resistance of two resistors, connected in series, the voltmeter is correctly connected only in circuit.



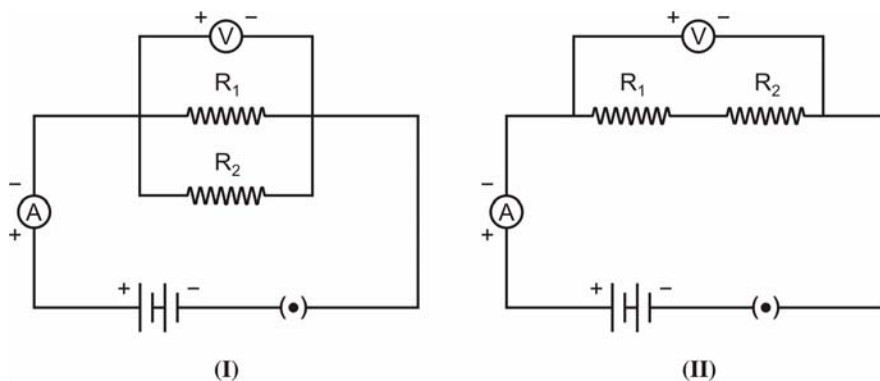
- (1) I
- (2) II
- (3) III
- (4) IV

Q.14: Two students are using the circuits shown here. They are doing the experiment to finding the equivalent resistance of a



- (1) Series combination and a parallel combination, respectively of the two given resistors.
- (2) Parallel combination and a series combination, respectively, of the two given resistors.
- (3) Series combination of the two given resistors in both the case.
- (4) Parallel combination of the two given resistors in both the cases.

Q.15: Two students are using the two circuits shown below. They are doing the experiment to find the equivalent resistance of a



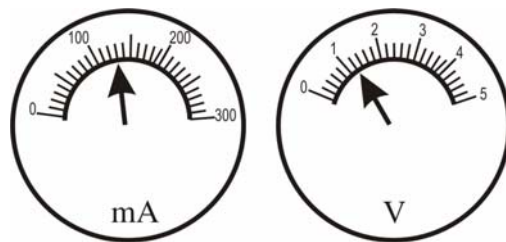
- (1) Series combination and a parallel combination, respectively, of the two given resistors.
- (2) Parallel combination and a series combination, respectively, of the two given resistors.
- (3) Series combination of the two given resistors in both the cases.
- (4) Parallel combination of the two given resistors in both the cases.

Q.16: A student did the experiment to find the equivalent resistance, of two given resistors, R_1 and R_2 , first when they are connected in series and next when they are connected in parallel. The two values of the equivalent resistance obtained by him were R_s and R_p respectively. He would find that

- (1) $R_s < R_p$
- (2) $R_p > R_s$
- (3) $R_s = R_p = \left(\frac{R_1 + R_2}{2} \right)$
- (4) $R_s = R_p$ but not equal to $\left(\frac{R_1 + R_2}{2} \right)$

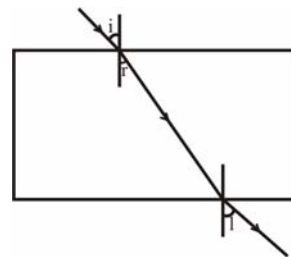
Q.17: The figures given below show the readings of a milliammeter and a voltmeter connected in an electrical circuit. Assuming that the instruments do not have any zero error, the correct readings of the milliammeter and voltmeter are

- (1) 160 mA and 1.1V
- (2) 130 mA and 1.2V
- (3) 103 mA and 1.1V
- (4) 130 mA and 1.5V

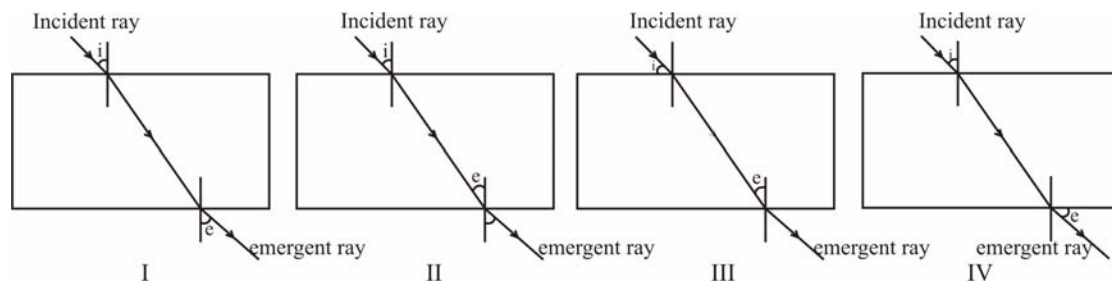


Q.18: While performing the experiment on tracing the path of a ray of light passing through a glass slab as shown in the given diagram, four students interpreted the results as given below. Which one of the four interpretations is correct?

- (1) $\angle r > \angle e$
- (2) $\angle r = \angle e$
- (3) $\angle i = \angle r$
- (4) $\angle i > \angle r$



Q.19: While performing the experiment to trace the path of a ray of light passing through a rectangular glass slab, four students labeled their ray diagrams in the manners shown below. The correct labeling has been done by student.



- (1) I
- (2) II
- (3) III
- (4) IV

Q.20: Four students reported the following observation tables for the experiment, to trace the path of a ray of light passing through a glass slab for different angles of incidence. The observations, likely to be correct are those of student.

$\angle i$	$\angle r$	$\angle e$
30°	40°	30°
40°	50°	40°
50°	60°	50°

I

$\angle i$	$\angle r$	$\angle e$
30°	20°	30°
40°	30°	40°
50°	40°	50°

II

$\angle i$	$\angle r$	$\angle e$
30°	20°	40°
40°	30°	50°
50°	40°	60°

III

$\angle i$	$\angle r$	$\angle e$
30°	20°	20°
40°	30°	30°
50°	40°	40°

IV

- (1) I
- (2) II
- (3) III
- (4) IV

Q.21: Your school laboratory has one large window. To find the focal length of a concave mirror using one of the walls as the screen, the experiment may be performed.

- (1) near the wall opposite to the window.
- (2) on the same wall as the window.
- (3) on the wall adjacent to the window.
- (4) only on the table as per the laboratory arrangement.

Q.22: In an experiment to determine the focal length of a concave lens, a student obtained the image of a distant window on the screen. To determine the focal length of the lens, She should measure the distance between the

- (1) lens and the screen only.
- (2) lens and the window only.
- (3) screen and the window only.
- (4) screen and the lens and also between the screen and the window.

Q.23: On the basis of their experiment 'to trace the path of a ray of light passing through a rectangular glass slab' four students arrived at the following interpretations:

- (1) Angle of incidence is greater than the angle of emergence.
- (2) Angle of emergence is less than the angle of refraction.
- (3) Emergent ray is parallel to the incident ray.
- (4) Emergent ray is parallel to the refracted ray.

The correct interpretation is that of the student

- (1) I
- (2) II
- (3) III
- (4) IV

Q.24: In an experiment to test the pH of a given sample using pH paper, four students recorded the following observations:

Sample Taken		pH paper colour turned to
I	Water	Blue
II	Dilute HCl	Red
III	Dilute NaOH	Blue
IV	Dilute Ethanoic Acid	Orange

Which one of the above observations is incorrect?

1. I
2. II
3. III
4. IV

Q.25: Four students were given colourless liquids A, B, C, of water, Lemon Juice and a mixture of water and lemon juice respectively. After testing these liquids with pH paper, following sequences in colour change of pH paper were reported:

- I Blue, Red and Green
- II Orange, Green and Green
- III Green, Red and Red
- IV Red, Red and Green

The correct sequence of colours observed is

1. I
2. II
3. III
4. IV

Q.26: A Student tested the pH of distilled water using pH paper and observed green colour. After adding a few drops of dilute NaOH solution, the pH was tested again. The colour change now observed would be

1. Blue
2. Green
3. Red
4. Orange

Q.27: Four solutions I, II, III, and IV were given to a student to test their acidic or basic nature by using a pH paper. He observed that the colour of pH paper turned to Red, Blue, Green and Orange respectively when dipped in four solutions.

The correct conclusion made by the statement would be that:

1. I, II and III are acidic.
2. I and IV are acidic.
3. II, III and IV are basic
4. II and IV are basic

Q.28: A student was given four unknown colourless samples labeled A, B, C and D and asked to test their pH using pH paper. He observed that the colour of pH paper turned to light green, dark red, light orange and dark blue with samples A, B, C and D respectively.

The correct sequence of increasing order of the pH value for samples is

1. $A < B < C < D$
2. $A < D < C < B$
3. $C < B < A < D$
4. $B < C < A < D$

Q.29: A blue litmus paper was first dipped in dil. HCl and then in dil. NaOH solution. It was observed that the colour of the litmus paper

1. Changed to red
2. Changed first to red and then to Blue
3. Changed blue to colourless
4. Remained blue in both the solutions.

Q.30: A Student added dilute HCl to a test tube containing Zinc Granules and made following observations:

- I The Zinc surface became dull and black.
- II A gas evolved which burnt with a pop sound
- III The solution remained colourless

The correct observations are:

1. I and II
2. I and III
3. II and III
4. I, II and III

Q.31: A dilute solution of sodium carbonate was added to two test tubes – one containing dil HCl (A) and the other containing dilute NaOH (B).

The correct observation was

1. A brown coloured gas librated in test tube A.
2. A brown coloured gas librated in test tube B.
3. A colourless gas librated in test tube A.
4. A colourless gas librated in test tube B.

Q.32: A student added dilute NaOH to a test tube containing Zinc granules and heated the contents. It was observe that

1. A colourless gas evolved.
2. Bubbles started rising up in the test tube.
3. Solution remained colourless and transparent.
4. Zinc granules became red.

Q.33: Four Students I, II, III and IV were asked to examine the changes for blue and red litmus paper strips with dilute HCl (solution A) and dilute NaOH (solution B). The following observations were reported by the four students. The sign (–) indicating no colour change.

Litmus	A	B
Blue	–	Red
Red	–	Blue

Litmus	A	B
Blue	Red	–
Red	–	Blue

Litmus	A	B
Blue	Red	Red
Red	Blue	Blue

Litmus	A	B
Blue	Blue	Blue
Red	Red	Red

The correct observation would be of the student

- I
- II
- III
- IV

Q.34: Given below are the observations reported by four students I, II, III and IV for the changes observed with dilute HCl or dilute NaOH and different materials.

Material	Dil. HCl	Dil. NaOH
(I) Moist Litmus paper	Blue – Red	Red to Blue
(II) Zinc Metal	React at room temperature	Does not react at room temperature
(III) Zinc Metal on heating	Liquid becomes milky	Remains clear and transparent
(IV) Solid sodium bicarbonate	No reaction	Brisk effervescence

The incorrectly reported observation is :

- I
- II
- III
- IV

Q.35: When a student added Zinc granules to dilute HCl, a colourless and odourless gas was evolved, which was tested with a burning match stick, it was observed that:

- The match stick continued to burn brilliantly.
- The match stick burnt slowly with a blue flame.
- The match stick extinguished and the gas burnt with pop sound.
- The match stick burnt with an orange flame.

Q.36: The colour of concentrated solution of potassium dichromate in water is

- Orange
- Green
- Purple
- Blue

Q.37: The odour of sulphur dioxide gas is

1. Pungent
2. Odourless
3. Sweet Smelling
4. Foul Smelling

Q.38: A student mistakenly used a wet gas jar to collect sulphur dioxide. Which one of the following tests of the gas is likely to fail?

- 1) Odour
- 2) Effect on acidified $\text{K}_2\text{Cr}_2\text{O}_7$ solution
- 3) Solubility test
- 4) Effect on litmus paper

Q.39: After preparing sulphur dioxide gas in the laboratory, students are advised not to throw the hot contents of the flask into the sink because the content would

- 1) damage the sink.
- 2) react violently with water in the sink.
- 3) cause pollution.
- 4) poisonous fumes.

Q.40: A student added zinc granules to copper sulphate solution taken in a test tube. Out of the following. The correct observation(s) made by of the student will be

- I. Zinc granules have no regular shape.
- II. Zinc granules have silvery grey colour.
- III. The colour of zinc granules changed to brownish black.

- 1) I only
- 2) II only
- 3) III only
- 4) I, II and III

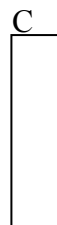
Q.41: Four strips labelled A,B,C and D along with their corresponding colours are shown below. Which of these could be made up of aluminum?



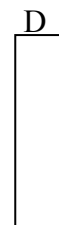
Reddish
Brown



Dark
Grey



Blackish
Grey



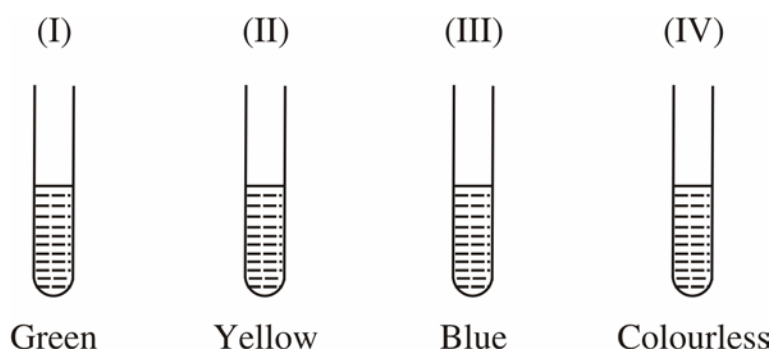
Silvery
White

- 1) A
- 2) B
- 3) C
- 4) D

Q.42: A copper sulphate solution is added to a test tube containing a cleaned iron nail. The correct description regarding the deposition of copper on the iron nail would be that it starts depositing.

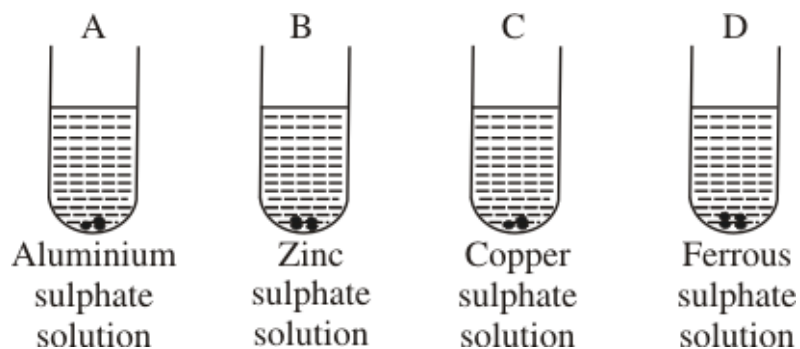
- 1) at the tip of the nail.
- 2) from the head of the nail.
- 3) in the middle of the nail.
- 4) anywhere on the nail.

Q.43: Four test tubes containing solutions (I), (II), (III) and (IV) are shown below along with their colours. Zinc sulphate is contained in



- 1) (I)
- 2) (II)
- 3) (III)
- 4) (IV)

Q.44: Zinc granules are placed in each of the four solutions A,B,C and D as shown colourisation would be observed in

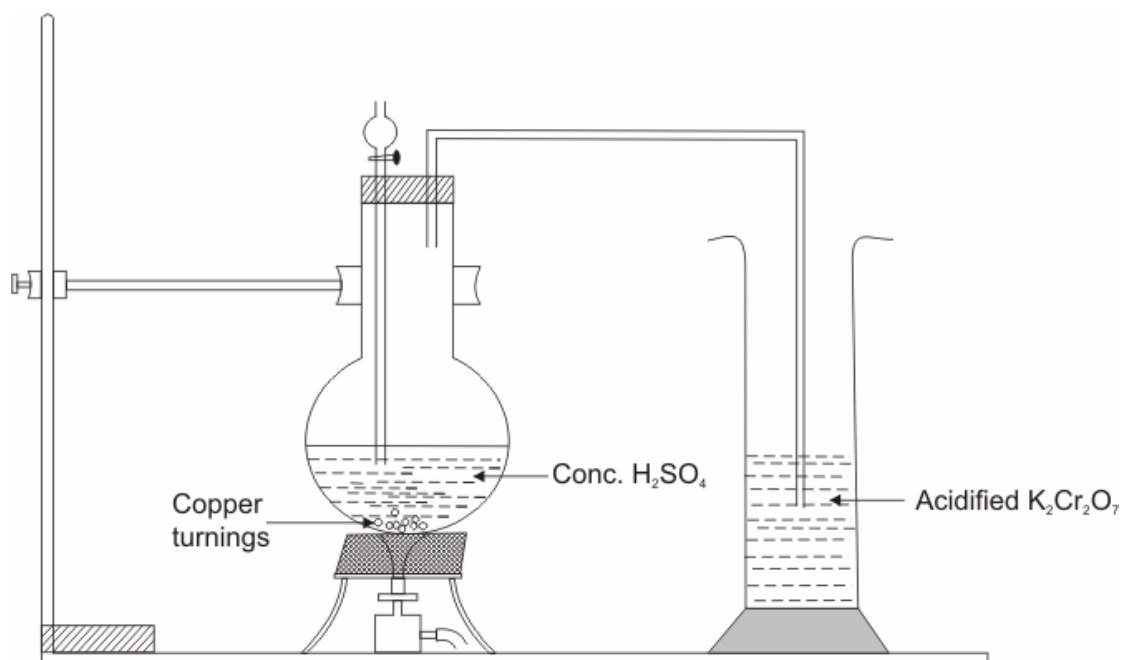


- 1) (A) and (B)
- 2) (C) and (D)
- 3) (A) and (C)
- 4) (B) and (D)

Q.45: A student is asked to add a tea spoon full of solid sodium bicarbonate to a test tube containing approximately 3 mL of acetic acid. He observed that the solid sodium bicarbonate

- 1) floats on the surface of acetic acid.
- 2) remains suspended in the acetic acid.
- 3) Settles down in the test tube.
- 4) reacts with acetic acid and a clear solution is obtained.

Q.46: In the following experiment, the gas evolved would turn the colour of acidified potassium dichromate to



- 1) Orange
- 2) Green
- 3) Blue
- 4) Red

Q.47: The chemical used for carrying out the starch test on a leaf is :

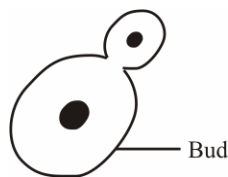
- 1) Iodine crystals
- 2) Iodine powder
- 3) Iodine solution
- 4) Potassium Iodide.

Q.48: Which one of the following is depicted in the sketch of a slide shown below :



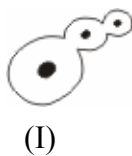
- 1) Binary fission in yeast
- 2) Budding in yeast
- 3) Binary fission in amoeba
- 4) Budding in amoeba

Q.49: Identify the mistake in the following sketch of budding in yeast.



- 1) Bud is shown to be smaller than parent cell.
- 2) Nuclei are present in both bud and parental cell.
- 3) Both parent and bud are shown as single cells.
- 4) Bud is wrongly labelled.

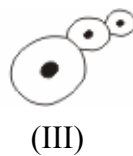
Q.50: Following diagrams were drawn by four different students on having seen a prepared slide of budding in yeast



(I)



(II)



(III)

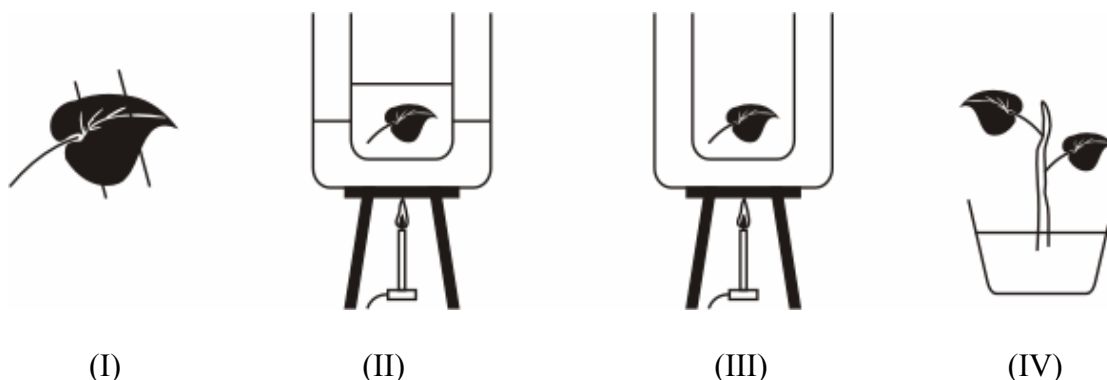


(IV)

The correct diagram is

- 1) I
- 2) II
- 3) I and III
- 4) II and IV

Q.51: The figure which does not illustrate any of the steps of the experiment to show that light is necessary for photosynthesis is



- 1) I
- 2) III
- 3) I and III
- 4) I, II and IV

Q.52: 5g of raisins were placed in distilled water for 24 hours. The weight of soaked raisins was found to be 7g. The correct percentage of water observed by raisins is

- 1) 20 %
- 2) 25 %
- 3) 40 %
- 4) 45 %

Q.53: A student covered a leaf from a destarched plant with a black paper strip and kept it in the garden outside his house in fresh air. In the evening, he tested the covered portion of the leaf for presence of starch. The student was trying to show that

- 1) CO₂ is given out during respiration
- 2) CO₂ is necessary for photosynthesis
- 3) Chlorophyll is necessary for photosynthesis
- 4) Light is necessary for photosynthesis

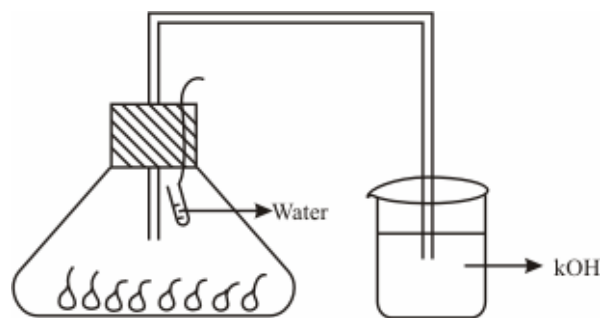
Q.54: The best results for the experiment, that light is necessary for photosynthesis, would be yielded by using leaves from a plant kept for over twenty four hours

- 1) in a pitch dark room
- 2) in a dark room with the table lamp switched on.
- 3) outside in the garden
- 4) outside in the garden, covered by a glass case.

Q.55: The correct sequence, out of the following options, for focusing a slide of epidermal peel of a leaf under a microscope to show the stomatal apparatus is

- I. Observe under low power.
 - II. Adjust mirror to get maximum light.
 - III. Place the slide on the stage.
 - IV. Focus under high power
- 1. II, III, I, IV
 - 2. I, II, III, IV
 - 3. III, II, IV, I
 - 4. III, II, IV, I

Q.56: A student while setting up the experiment to show that CO_2 is evolved during respiration committed some errors shown in the figure



What changes should be made in the set up to get the desired results?

- 1) KoH solution should be taken in the small test tube inside the flask and germinating seeds in the beaker.
- 2) Water should be taken in the beaker and KoH solution in the flask.
- 3) KoH solution should be taken in the small test tube inside the flask and water should be taken in the beaker
- 4) Water should be taken in the flask and KoH solution in the small test tube.

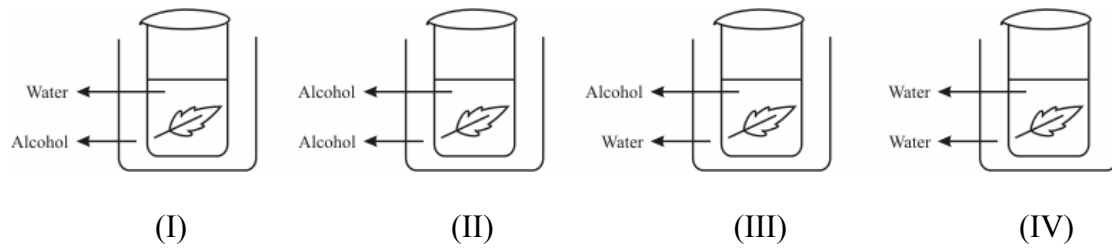
Q.57: The part of leaf commonly used for preparing the slide of stomata is

- 1) leaf margin
- 2) leaf apex
- 3) leaf epidermis
- 4) leaf petiole

Q.58: A student wanted to decolourise a leaf. He should boil the leaf in

- 1) alcohol
- 2) water
- 3) KoH solution
- 4) glycerine

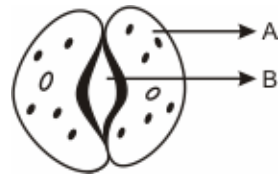
Q.59: The figures given below illustrate boiling of leaf to remove chlorophyll. This is one of the steps in the experiment to show that light is necessary for photosynthesis



The correct method is

- 1) I
- 2) II
- 3) III
- 4) IV

Q.60: The parts shown as A and B in the given diagram are

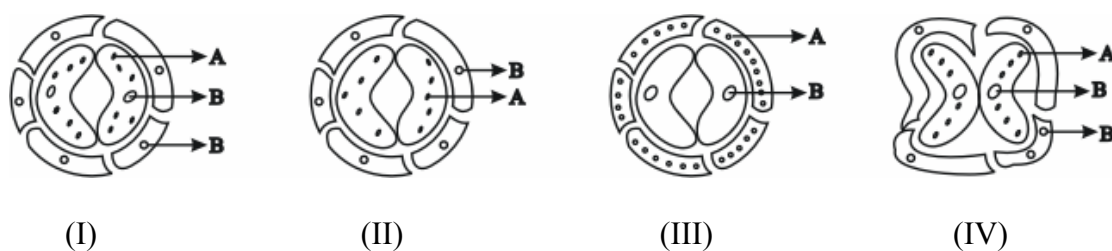


- 1) A is epidermal cell, B is stomatal pore
- 2) A is guard cell, B is stomatal pore
- 3) A is epidermal cell, B is guard cell
- 4) A is guard cells, B is epidermal cell

Q.61: In order to prepare a temporary mount of a leaf peel of observing stomata, the chemicals used for staining and mounting respectively are

- 1) Saffranin and glycerine
- 2) Iodine and glycerine
- 3) Iodine and saffranin
- 4) glycerine and saffranin

Q.62: The diagrams of stomata shown below were drawn by four different students and the organelles marked A and B were labelled as chloroplast and nucleus respectively



The correct diagram with correct labels is

- 1) I
- 2) II
- 3) III
- 4) IV

Q.63: Which of the following precautions should be kept in mind while preparing a temporary slide of an epidermal peel of a leaf.?

- I Wash off extra stain with distilled water
- II Clean slide and cover slip before use
- III Put only drop of glycerine on the cover slip
- IV Pull out a thin leaf peel
- V Use filter paper to wipe the stained peel.

1. I, II, III
2. I, II, IV
3. III, IV, V
4. II, IV, V

Q.64: An apparatus was set up to show that germinating seeds release carbon-dioxide during respiration. Which observation out of the following should be made to get correct results?

1. Carefully observe if there is any change in the size of germinating seeds.
2. See if the KOH in the test tube has absorbed CO₂ released by germinating seeds.
3. Check the change in the level of water present in the beaker.
4. Check if CO₂ is coming into the delivery tube.

Q.65: Which one of the following diagrams most appropriately illustrates binary fission in amoeba?



1. I
2. II
3. III
4. IV

Q.66: Nuclei can be clearly seen in a well prepared slide of epidermal peel of a leaf in the

1. guard cells only
2. epidermal cells only
3. guard cells as well as epidermal cells
4. stomata, guard cells and epidermal cells.

Q.67: To set up the experiment to show that light is necessary for photosynthesis, experimental leaves should be taken for use from

1. any flowering plant
2. newly emerged sapling
3. destarched potted plant
4. healthy plant growing on the ground.

Q.68: The seeds used in the experiment to show that CO_2 is given out during respiration are

1. dry seeds
2. boiled seeds
3. crushed seeds
4. germinating seeds.

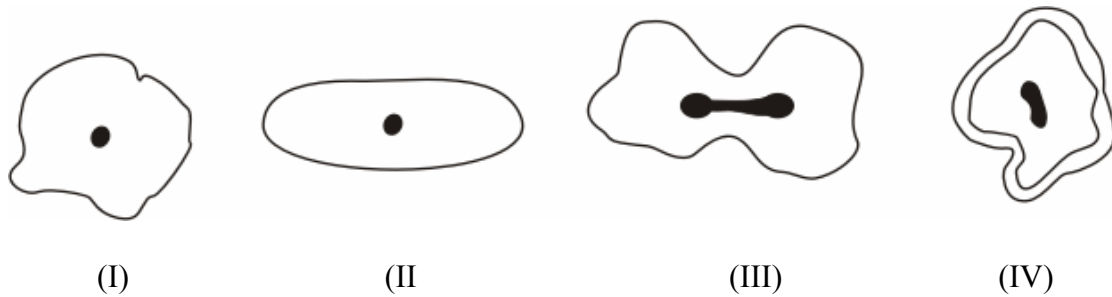
Q.69: Under the high power objective of a microscope, an epidermal peel of a leaf shows.

1. stomata surrounding many guard cells
2. stomata surrounded by a pair of guard cells each.
3. stomata surrounded by several epidermal cells.
4. stomata surrounded by several guard cells each.

Q.70: A slide showing several amoebae was given to a student and was asked to focus the amoeba undergoing binary fission. What will the student look for to correctly focus on a dividing amoeba?

1. An amoeba with many pseudopodia and a small nucleus.
2. A rounded amoeba with rounded nucleus.
3. An amoeba covered by a cyst and many nuclei
4. An amoeba with elongated nucleus and a constriction in the middle.

Q.71: Which one out of the following diagrams correctly depicts an amoeba undergoing binary fission?



1. I
2. II
3. III
4. IV

Q.72: What is the inference drawn from the experiment to determine the percentage of water absorbed by raisins ?

1. distilled water enters raisins because of endosmosis
2. distilled water enters raisins because of exosmosis
3. water moves out of raisins due to endosmosis
4. water moves out of raisins due to exosmosis.