

## SECTION-A

- Q1. What is the direction of magnetic field inside a bar magnet? 1
- Q2. Name the part of the brain that maintains posture and equilibrium in the body. 1
- Q3. Why do we paint box type solar cooker black? 1
- Q4. What is galvanized iron? Iron objects acquire a reddish brown coating when left exposed to moist air. Name the chemical process responsible for this coating and name the red coating formed. 2
- Q5. Give reasons for the following - 2
- Iron knife dipped in a blue copper sulphate solution turns the blue solution light green.
  - Carbonate and sulphide ores are usually converted into oxide during the process of extraction.
- Q6. Two identical resistances are connected first in series and then in parallel. In which case the current would be minimum through the circuit? 2  
In a circuit if two resistors 20 ohm and 10 ohm are connected in series, find the potential difference across each of them for a 10 V power supply.
- Q7. State right hand thumb rule to find the direction of magnetic field around a straight conductor carrying current. How will this magnetic field be affected on increasing the current through the conductor and on changing the direction of flow of current? 2
- Q8. Identify the type and write the chemical reaction taking place when 3
- On heating green coloured ferrous sulphate crystals, reddish brown solid is left and smell of a gas having odour of burning sulphur is experienced.
  - Quick lime reacts vigorously with water releasing a large amount of heat.
  - Copper metal is added to silver nitrate solution to form an aqueous solution of copper salt and silver metal.
- Q9. With the help of an activity show that the amount of hydrogen produced is double the amount of oxygen produced during the electrolysis of water. 3
- Q10. (a) On eating spicy food we feel burning sensation in our stomach, why? Which medicine will you take as a remedy? 3  
(b) Two solutions A and B have pH 4 and 8 respectively. Which of the two has higher concentration of  $H^+$  ions and why?  
(c) Fresh milk has a pH of 6. When it changes into curd will its pH value increase or decrease? Why?
- Q11. Give reasons for the following ; 3
- Aluminium oxide is considered an amphoteric oxide.
  - Ionic compounds have high melting points.
  - Metals do not displace hydrogen from nitric acid ( $HNO_3$ ).

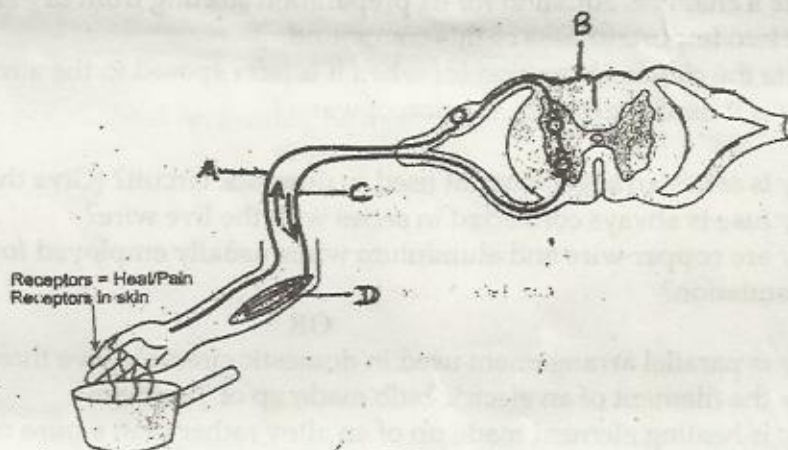
Q12. State ohm's law. How can it be graphically expressed? Two lamps are rated 100W- 220V and 40W-220V are connected in parallel to the electric supply of 220V. Calculate the total energy consumed by the two lamps together when they operate for one hour in S.I. units. 3

Q13. Express joules law of heating mathematically. What is the resistance of 24 m wire having radius  $2 \times 10^{-4}$  m and resistivity  $3.14 \times 10^{-8}$  ohm-m? 3

Q14. What is earthing? Differentiate between short circuiting and overloading. (Give two points) 3

Q15. Name and state the function of tissues responsible for the transportation in plants. 3

Q16. Name the parts A, B, C and D. What do the arrows indicate? 3



Q17. What is Phototropism? How does it occur in plants .Draw a neat diagram to show the movement? 3

Q18. What are advantages and limitations of solar cells? (Give three each) 3

Q19. List three advantages of using biogas over fossil fuels. 3

Q20. (a) Show the formation of CaO by transfer by electrons. 5  
 (b) Discuss the electrolytic refining of copper with the help of labeled diagram.

OR

(a) Define Metallurgy.

(b) Two ores A and B were taken. On heating ore A gives  $\text{CO}_2$  whereas ore B gives  $\text{SO}_2$  . Explain four steps you will take to convert them into metals?



Q21. A chemical compound 'X' is used in soda-acid type fire extinguishers and also an ingredient in antacids. 5

- (a) Identify 'X' and give its chemical formula.
- (b) Write a chemical equation for its preparation starting from sodium chloride.
- (c) What happens when this compound is heated strongly?
- (d) Why is tartaric acid added to baking powder for the preparation of cakes and biscuits?
- (e) How does it help in extinguishing fire?

OR

- (a) A white substance 'X' having a strong smell of chlorine is used to clear a water tank.
- (b) Identify the chemical substance 'X' and give its chemical formula.
- (c) Write a chemical equation for its preparation starting from dry slaked lime.
- (d) List two important uses of this compound.
- (e) Write the chemical reaction for when it is left exposed to the atmosphere?
- (f) Why is it used for the purification of water?

Q22. 5

- a) Why is series arrangement not used in domestic circuit? (Give three points)
- b) Why fuse is always connected in series with the live wire?
- c) Why are copper wire and aluminium wires usually employed for electricity transmission?

OR

- a) Why is parallel arrangement used in domestic circuit? (Give three points)
- b) Why the filament of an electric bulb made up of Tungsten?
- c) Why is heating element made up of an alloy rather than a pure metal?

Q23. 5

- a) Draw the field pattern of the magnetic field lines through and around a current carrying solenoid.
- b) What does the magnetic field pattern inside the solenoid indicate?
- c) How can this principle be utilized to make an electromagnet?
- d) State two ways by which strength of this electromagnet can be increased?

OR

- a) Describe an activity to show how a moving magnet may be used to generate electric current. State the rule to find the direction of electric current generated in the coil.
- b) A coil A of insulated copper wire is connected to a galvanometer. What would you observe when
  - 1) A current carrying coil B is brought near A
  - 2) Strength of current in coil B is increased.

- Q24. a) Draw a sectional view of human heart and label the following parts : 5  
Aorta, Septum, Right ventricle and Pulmonary vein.  
b) State the functions of Blood and Lymph 5  
OR
- a) Draw a diagram of human respiratory system and label the following parts:  
Trachea, Bronchi, Alveolar sac and Diaphragm.  
b) Give reason for the following :  
i) The alveoli are covered with blood capillaries.  
ii) The wall of trachea is supported by cartilage rings.

#### SECTION-B

- Q25. The gas which is not evolved on heating ferrous sulphate crystal is 1  
a)  $\text{SO}_2$   
b)  $\text{SO}_3$   
c)  $\text{O}_2$   
d) None of these
- Q26. Which one of the following statements is not correct when barium chloride solution is mixed with sodium sulphate solution 1  
a) It is a double displacement reaction  
b) It is a precipitation reaction  
c) It is a fast reaction  
d) It is a redox reaction.
- Q27. The colour of pH paper expected in lemon juice , water and dilute sodium bicarbonate solution respectively are 1  
a) Green, red and blue  
b) Red , green and blue  
c) Blue , red and green  
d) Red , blue and green



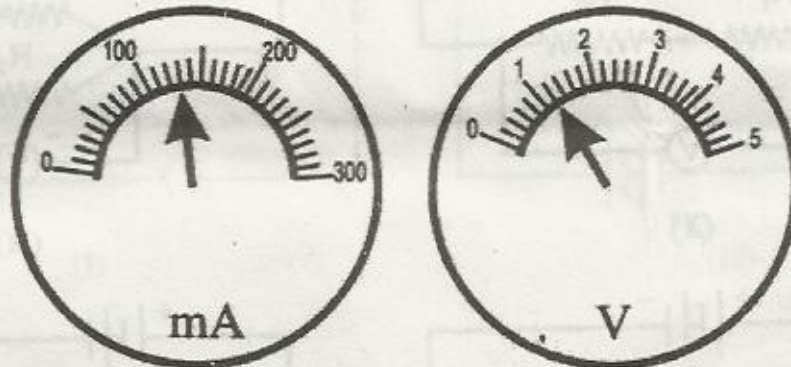
- Q28. On adding a few drops of acid to distilled water, the p H will be 1
- Less than 7
  - More than 7
  - 7
  - Remaining unchanged
- Q29. Which one of the following reaction will be the slowest 1
- Zinc + Dilute hydrochloric acid
  - Sodium carbonate + dilute hydrochloric acid
  - Sodium hydroxide + Hydrochloric acid
  - Zinc + sodium hydroxide solution
- Q30. Which of the following metals cannot displace copper from its salt solution 1
- Zinc
  - Aluminium
  - Silver
  - Calcium
- Q31. Varun was asked to report the colour of aqueous solutions of  $\text{FeSO}_4$ ,  $\text{CuSO}_4$ ,  $\text{Al}_2(\text{SO}_4)_3$  and  $\text{ZnSO}_4$ . Which amongst the following is not reported correctly by Varun. 1
- $\text{FeSO}_4$  solution is green in colour.
  - $\text{CuSO}_4$  solution is blue in colour
  - $\text{Al}_2(\text{SO}_4)_3$  solution is yellow in colour.
  - $\text{ZnSO}_4$  solution is colourless.
- Q32. A student set ups an electrical circuit for the verification of Ohm's law. He observes that voltmeter reading gets in reverse direction. The student should 1
- Get the voltmeter replaced
  - Decrease the resistance
  - Reverse connections of voltmeter
  - Connect voltmeter in series

Q33. Resistance of a metallic wire depends on

1

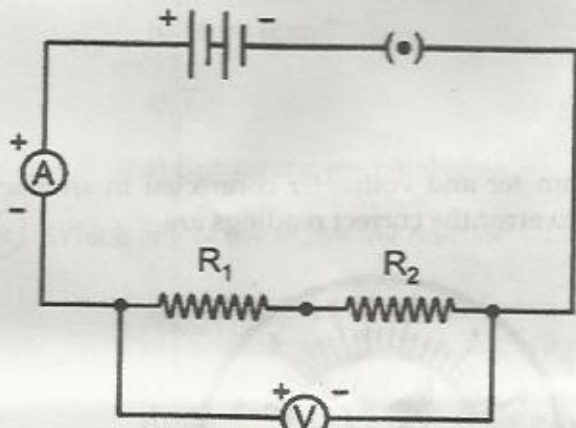
- a) Length of the wire
- b) Diameter of the wire
- c) Nature of the material
- d) All the above

Q34. The figure below shows the readings of milliammeter and voltmeter connected in an electric circuit. Assuming that the instrument have no zero error the correct readings are

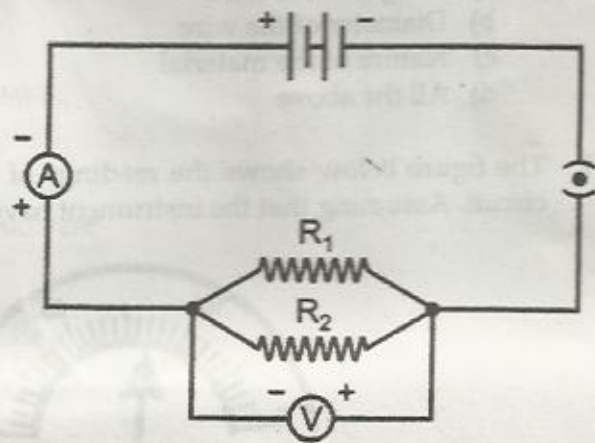


- a) 160 mA and 1.1V
- b) 130 mA and 1.2V
- c) 103 mA and 1.1V
- d) 130 mA and 1.5V

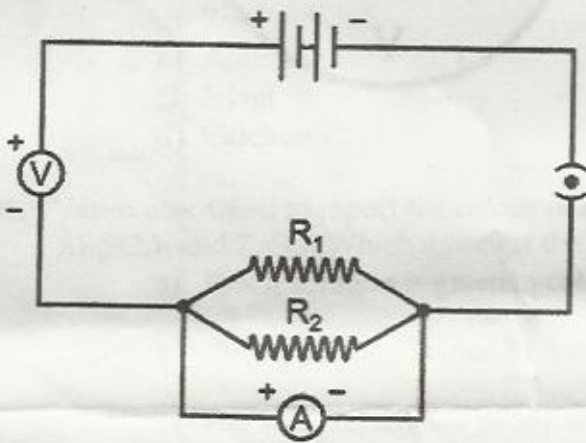
Q35. Following Circuits were drawn by four students, to determine the equivalent resistance of two resistors when connected in parallel. The correct circuit is drawn by the student. 1



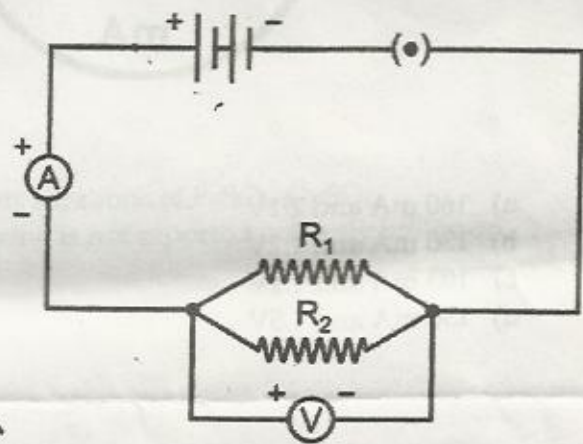
(I)



(II)



(III)

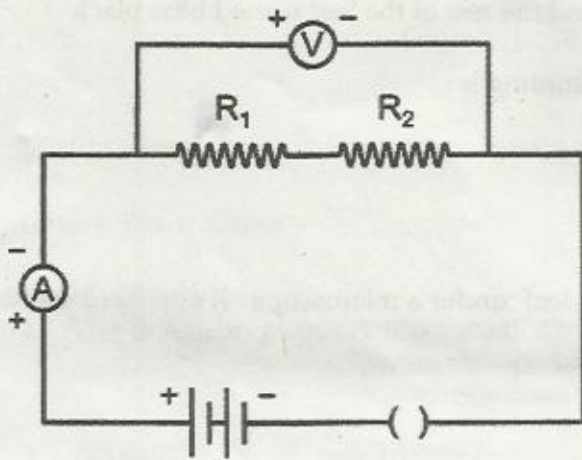


(IV)

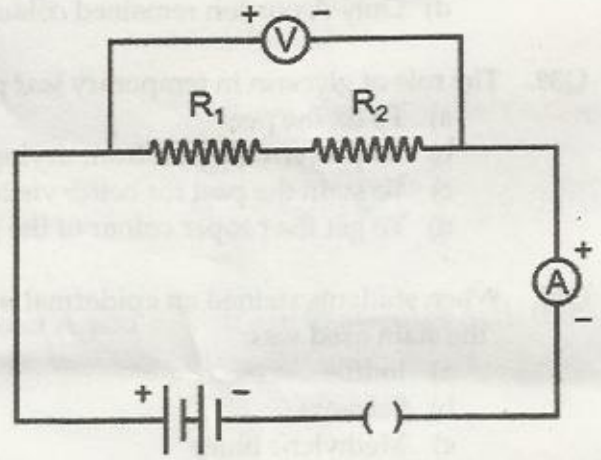
- a) I
- b) II
- c) III
- d) IV



Q36. In an experiment to find equivalent resistance of two resistors, connected in series, the ammeter is correctly connected in 1



(I)



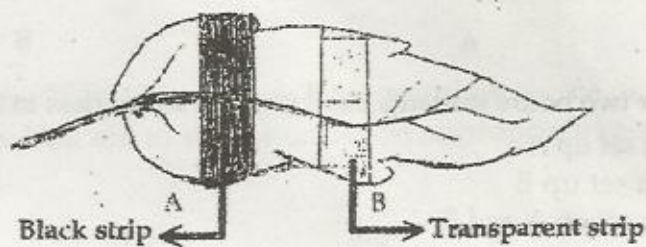
(II)

- a) I only
- b) II only
- c) Both I and II
- d) Neither I nor II

Q37. Which of the following is the combination of relevant materials required for setting up an experiment to show that light is necessary for photosynthesis: 1

- a) Destarched leaves, strips of black paper, starch solution and iodine crystals
- b) A potted plant, strips of black paper, starch solution, iodine and potassium iodide
- c) Destarched leaves, strips of black paper, starch solution and potassium iodide
- d) Destarched leaves, strips of black paper and iodine solution

Q38. A destarched leaf on a potted plant was covered with 1  
 A. Black strip and B. Transparent strip as shown in the figure. 1



After 6 hours of exposure to sunlight the leaf was removed from the plant and tested for starch. Which of the following will be the correct observation?



- a) Whole leaf turned blue black
- b) Only B portion turned blue black
- c) Only A&B portions remained colourless and the rest of the leaf turned blue black
- d) Only A portion remained colourless and the rest of the leaf turned blue black

Q39. The role of glycerin in temporary leaf peel mounting is :

1

- a) To fix the peel
- b) To prevent the peel from drying
- c) To stain the peel for better visibility
- d) To get the proper colour of the peel

Q40. When students stained an epidermal peel of a leaf under a microscope it appeared pinkish red, the stain used was:

1

- a) Iodine
- b) Safranin
- c) Methylene blue
- d) glycerin

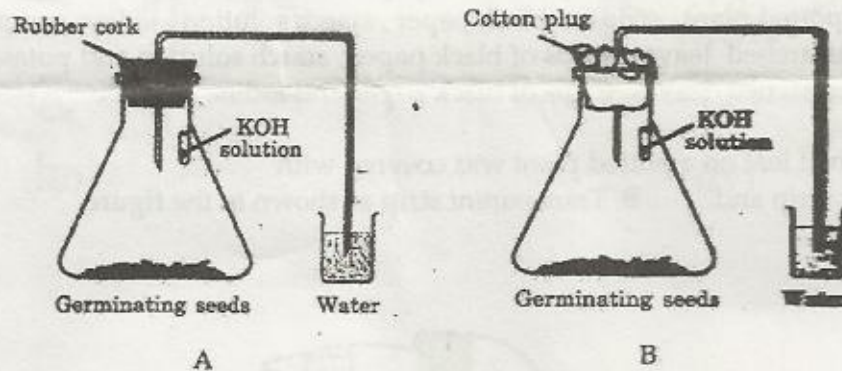
Q41. A leaf is boiled in alcohol before using Iodine for starch test in order to :

1

- a) Dissolve starch
- b) Dissolve chlorophyll
- c) Soften the leaf
- d) Make it react with iodine

Q42. The following experimental set ups were kept in the laboratory to show that  $\text{CO}_2$  is given out during respiration.

1



After two hours students observed that water rises in the delivery tube:

- a) Only in set up A
- b) Only in set up B
- c) In both set up A and B
- d) Neither in set up A nor in B