

SCIENCE

Complete the given worksheet

Physics:

1. What is the maximum resistance which can be made using five resistors each of $1/5 \Omega$?

Ans: 1Ω

2. What is the minimum resistance which can be made using five resistors each of $1/5 \Omega$?

Ans: $1/25 \Omega$

3. If the current I through a resistor is increased by 100% (assume that temperature remains unchanged). What will be the increase in power dissipation? Ans: 300%

4. An electric kettle consumes 1 kW of electric power when operated at 220 V. A fuse wire of what rating must be used for it? Ans: 5A

5. How does use of a fuse wire protect electrical appliances?

6. What is electrical resistivity of a material? What is its unit?

7. Find out the following in the electric circuit given in the below figure

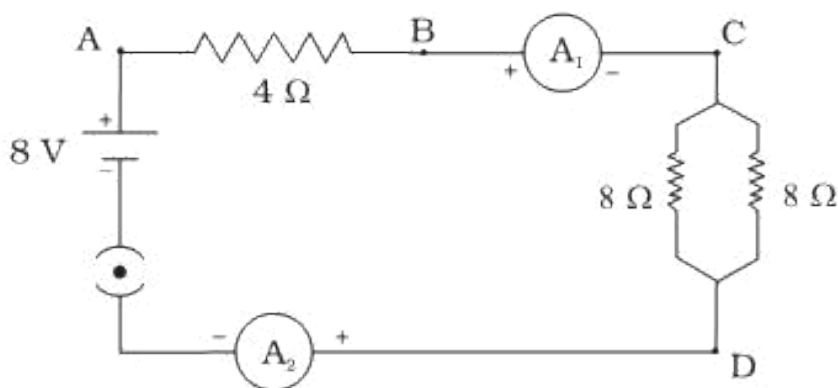
(a) Effective resistance of two 8Ω resistors in the combination

(b) Current flowing through 4Ω resistor

(c) Potential difference across 4Ω resistance

(d) Power dissipated in 4Ω resistor

(e) Difference in ammeter readings, if any.



Ans: a. 4Ω b. 1A c. 4V, d. 4W e. no difference

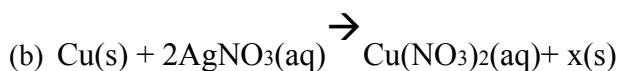
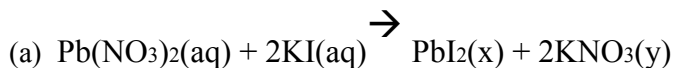
8. Under what conditions permanent electromagnet is obtained if a current carrying solenoid is used? Support your answer with the help of a labelled circuit diagram.
9. What does the direction of thumb indicate in the right-hand thumb rule? In what way this rule is different from Fleming's left-hand rule?
10. What is the difference between a direct current and an alternating current? How many times does AC used in India change direction in one second?
11. Write two properties of magnetic field lines.
12. Draw magnetic field lines due to (i) bar magnet (ii) solenoid.
13. What happens to the magnetic field due to the current carrying conductor when the current is doubled in the conductor

Chemistry:

Q1. Write the balanced chemical equations for the following reactions and identify the type of reaction in each case.

- (a) Thermite reaction, iron (III) oxide reacts with aluminium and gives molten iron and aluminium oxide.
- (b) Magnesium ribbon is burnt in an atmosphere of nitrogen gas to form solid magnesium nitride.

Q2. Complete the missing components/variables given as x and y in the following reactions:



Q3. 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 the chemical reaction?

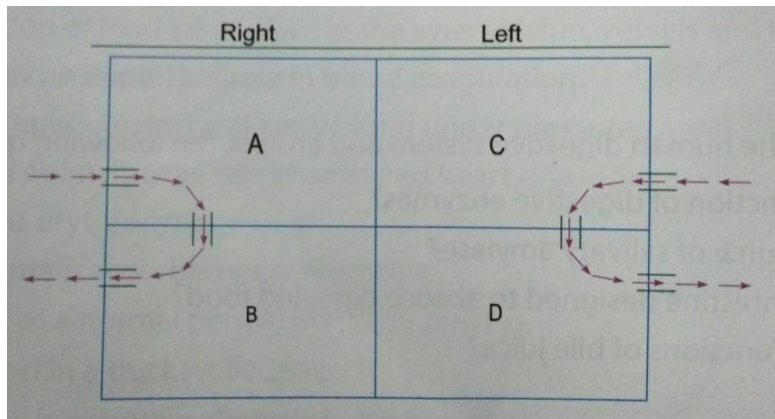
Q4. Why do fireflies glow at night?

- Q5. Grapes hanging on the plant do not ferment but after being plucked from the plant can be fermented. Under what conditions do these grapes ferment? Is it a chemical or a physical change?
- Q6. Why do we store silver chloride in dark coloured bottles?
- Q7. Why is sulphuric acid called 'King of chemicals'?
- Q8. What is the difference between a strong base and a weak base? Give two examples of each of them.
- Q9. What happens when NaOH solution is heated with (a) zinc (b) aluminium
- Q10. Briefly explain the basic theory of the manufacture of baking soda.
- Q11. Why does tooth decay start when the pH of the mouth is lower than 5.5?
- Q12. Crystals of copper sulphate are heated in a test tube for sometime:
- (a) What is the colour of copper sulphate crystals, before heating and after heating?
 - (b) What is the source of liquid droplets seen on the inner upper side of the test tube during the heating process?
- Q13. Why should curd be not kept in copper or brass vessels? What is done to protect it?
- Q14. Comment on the statement " all alkalies are bases but all bases are not alkalies".
- Q15. A tarnished copper vessel begins to shine again when rubbed with lemon. Why?
- Q16. Name the raw materials that are required for the manufacture of washing soda by solvay process. Describe the chemical reactions involved in the process.
- Q17. Write any three chemical properties of acids with the balanced chemical equations involved.
- Q18. With the help of a chemical equation explain how a soda-fire extinguisher helps in putting out a fire.

Biology

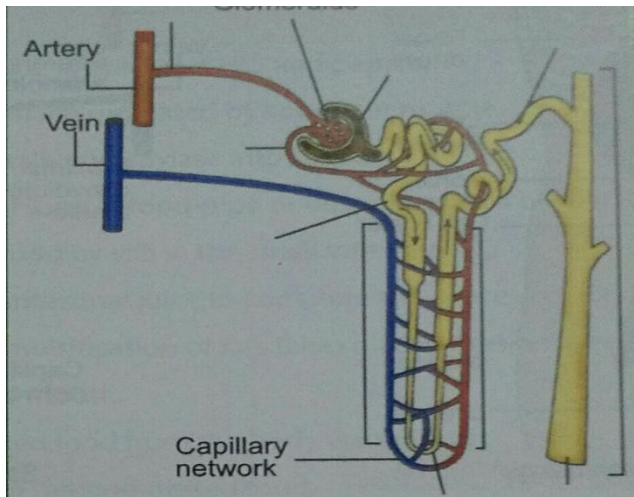
Life Processes

1. What prevents the entry of food particles into the trachea?
2. Draw a well labelled diagram of human respiratory system.
3. Given here is the diagrammatic representation of a four chambered heart. Observe the diagram:



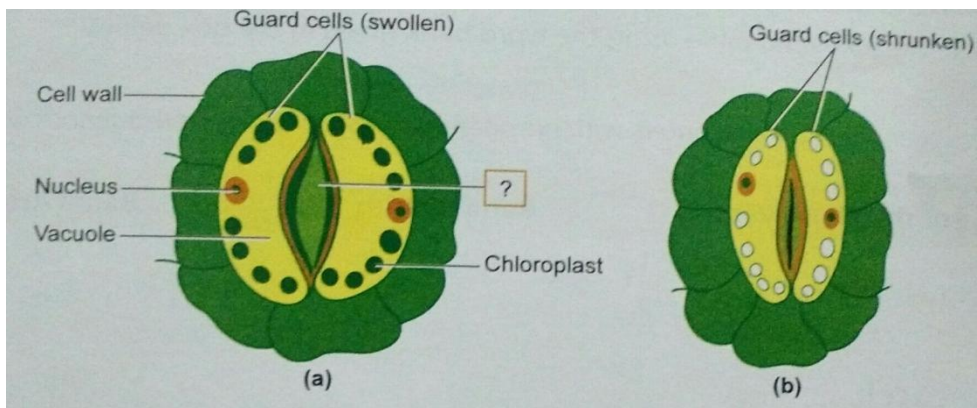
Carefully and answer the following questions.

- (a) Name the group of organisms that has four chambered heart.
 - (b) Name the chamber marked as A and specify whether it will receive oxygenated blood or deoxygenated blood .
 - (c) Name the chamber marked as B and specify whether it will receive oxygenated blood or deoxygenated blood .
 - (d) Name the chamber marked as C and specify whether it will receive oxygenated blood or deoxygenated blood .
 - (e) Name the chamber marked as D and specify whether it will receive oxygenated blood or deoxygenated blood .
 - (f) Name the blood vessel that brings blood to chamber A.
 - (g) Name the blood vessel that brings blood away from chamber A.
 - (h) Name the blood vessel that brings blood to away chamber C.
 - (i) Name the blood vessel that carries blood away from chamber 'D' .
 - (j) What will happen if the blood in chambers 'A' and 'C' gets mixed?
4. Observe the diagram given below and answer the questions that follow:



- (a) What is the fluid entering the collecting tubule called?
- (b) Where is blood filtered in the nephron?
- (c) Where does the reabsorption of useful substance take place?
- (d) Name some substances reabsorbed in the nephron.

5. Observe the diagram of stomata given below and answer the questions.



- (a) Where are stomata present in a leaf?
- (b) In diagram (a), one arc has been marked with a question mark. Name this area.
- (c) The area mentioned in question 2 is not shown in diagram (b). What could be the reason?
- (d) The guard cells in diagram are in different size and shape from the guard cells in diagram B. What is the reason for this?
- (e) What will happen if there are no stomata in a plant?

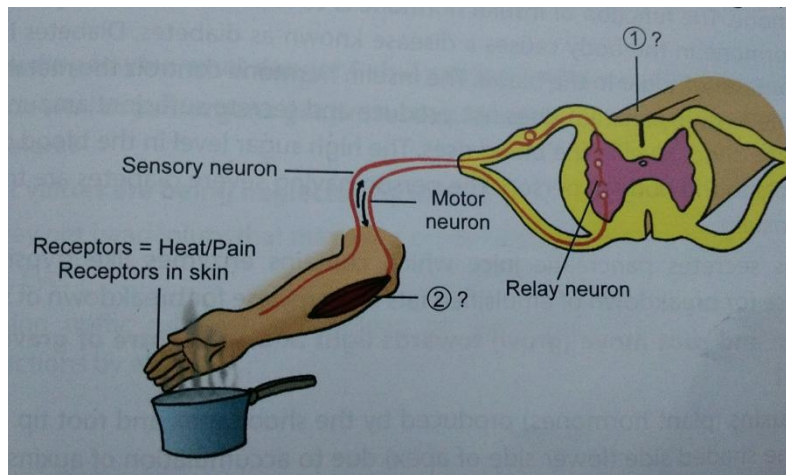
Control and Coordination

6. What does the given experimental set-up demonstrate?

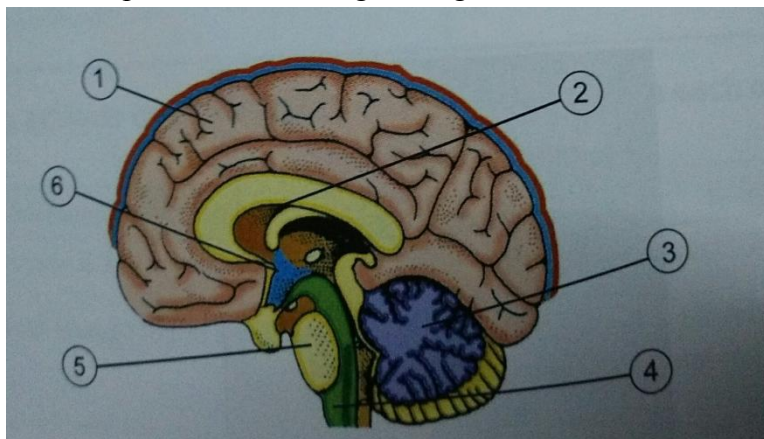


7. Label the two parts indicated by question marks 1 and 2 in the above diagram.

Suggest a suitable caption for the above diagram.



8. Label parts 1 to 6 in the given figure of brain:



9. A particular hormone requires iodine for its synthesis. Name the endocrine gland which secretes this hormone and state its location in the human body.

10. Why is the flow of signals in a synapse from axonal end of one neuron to dendritic end of another neuron but not the reverse?

