

carrying conductor. Draw a sketch of the pattern of field lines due to a current flowing through a straight conductor.

24. (a) Draw the structure of a nephron and label on it the following parts:
 (i) Glomerulus (ii) Bowman's capsule (iii) Renal artery (iv) Collecting duct
 (b) What happens to glucose, amino acids, salts and water that enter the nephron along with filtrate?

Or

- (a) Name the hormone which is injected to a diabetic patient.
 (b) Why should we use iodized salt in our diet?
 (c) If iodine is insufficient in one's diet, what might be the deficiency disease and its symptoms?



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Science

(Test 1 for SA - 1, Sep' 2012)

Time allowed: 2½ hours

Maximum Marks: 72

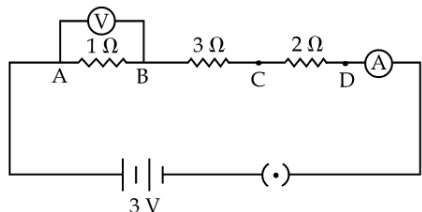
General Instructions:

- All questions are compulsory.
- There is no overall choice. However, internal choice has been provided in all the five questions of five marks category. Only one option in such questions is to be attempted.
- Questions 1 to 3 in section A are one mark questions. These are to be answered in one word or in one sentence.
- Questions 4 to 7 in section A are two marks questions. These are to be answered in about 30 words each.
- Questions 8 to 19 in section A are three marks questions. These are to be answered in about 50 words each.
- Questions 20 to 24 in section A are five marks questions. These are to be answered in about 70 words each.

Section A

- Why are bags of chips flushed with nitrogen gas?
- Two resistors of $30\ \Omega$ and $60\ \Omega$ are connected in parallel in an electric circuit. How does the current passing through the two resistors compare?
- Which is the internal energy reserve in plants?
- Write the chemical name and formula of bleaching powder. How is it prepared?
- Give reason:
 - Ionic compounds have high melting point
 - Ionic compounds are hard crystalline solids.
- "Biogas" is considered as ideal fuel for domestic use". List any four reasons to justify this statement.
- Give two advantages and two limitations of using solar cooker for domestic purposes.
- Most metals do not react with bases but zinc metal does. Suggest a reason and write an equation for the reaction between zinc and NaOH.
- (a) How is copper obtained from its sulphide ore? Write balanced chemical equations.
 (b) Give the electrolytic refining of impure copper with labeled diagram.

10. The pH of the mouth of a person is lower than 5.5. What changes will occur in his mouth? How these changes can be controlled? Write any two measures.
11. When a solution of potassium iodide is added to a solution of lead nitrate in a test-tube a reaction takes place.
- (a) What type of reaction is this?
- (b) Write a balanced chemical equation to represent the above reaction.
12. What would be the reading of ammeter and voltmeter in the given circuit?



13. (a) Why an ammeter likely to burn out if you connect it in parallel ?
- (b) Why is series arrangement not found satisfactory for domestic lights ?
14. What is the function of an earth wire? Why is it necessary to earth metallic appliances?
15. (a) Draw a labeled diagram of the pattern of field lines due to a current flowing through a circular coil?
- (b) What does the degree of closeness of field lines signify?
16. What is excretion? How do unicellular organisms remove their wastes?
17. Name the substance that is oxidized in the body during respiration. Why are lungs divided into very small sac-like structures?
18. How is separation of right side and left side of the heart useful in mammals and birds?
19. (a) What is geothermal energy?
- (b) What are the advantages of wind energy?
20. (i) Account for the following.
- (a) Dry HCl gas does not change the colour of dry blue litmus paper.
- (b) Antacid tablets are used by a person suffering from stomach pain.
- (c) Toothpaste is used for cleaning teeth.
- (ii) While diluting an acid, why is it recommended that the acid should be added to water and not water to the acid?

Or

- (i) What are strong acids and weak acids? Give an example for each.
- (ii) A dry pellet of a common base 'B' when kept in open absorbs moisture and turns sticky. The compound is also formed by Chlor-alkali process. Identify B. what type of reaction occurs when B is treated with dilute hydrochloric acid. Write the chemical equation.
21. (i) solid calcium oxide was taken in a container and water was added slowly to it:
- (a) Write the observation

- (b) Write the chemical formula of the product formed.
- (ii) What happens when carbon dioxide gases bubbled through lime water
- (a) In a small amount
- (b) In excess
- (iii) Why do we apply paint on iron articles?
- Or
- (i) A, B and C are three elements which undergo chemical reactions according to the following equations.
- $$\text{A}_2\text{O}_3 + 2\text{B} \rightarrow \text{B}_2\text{O}_3 + 2\text{A}$$
- $$3\text{CSO}_4 + 2\text{B} \rightarrow \text{B}_2(\text{SO}_4)_3 + 3\text{C}$$
- $$3\text{CO} + 2\text{A} \rightarrow \text{A}_2\text{O}_3 + 3\text{C}$$
- Answer the following questions with reasons:
- (a) Which are meant as the most reactive?
- (b) Which element is the least reactive?
- (c) What is the type of reactions listed above?
- (ii) Identify the substances that are oxidised and that are reduced in the following reactions:
- (a) $\text{ZnO} + \text{C} \rightarrow \text{Zn} + \text{CO}$
- (b) $\text{CuO} + \text{H}_2 \rightarrow \text{Cu} + \text{H}_2\text{O}$
22. (a) State ohm's law. Express it mathematically.
- (b) Write symbols used in electric circuits to represent:
- (i) Variable resistance (ii) Voltmeter
- (c) An electric bulb is rated 220 V and 100W. When it is operated on 110V, what will be the power consumed?

Or

- (a) Derive an expression for the equivalent resistance of three resistors R_1 , R_2 and R_3 connected in parallel.
- (b) Fuse of 3 A, 5 A and 10 A are available calculate and select the fuse for operating electric iron of 1 kW power at 220 V line.
23. (i) With the help of an activity, explain the method of inducing electric current in a coil with a moving magnet. State the rule used to find the direction of electric current. What will you observe in Q?
- (ii) Two circular coils P and Q are kept close to each other, of which coil P carries a current. What will you observe in Q?
- (a) If current in the coil P is changed?
- (b) If both the coils are moved in the same direction with the same speed? Give reason.

Or

Explain why two magnetic lines do not intersect each other. State the rule for determining the direction of the magnetic field produced around a current