AMRITA VIDYALAYAM

HALF YEARLY EXAMINATION 2017 -'18

Class : X **Marks : 80**

Time : 3 hrs

SCIENCE

General Instructions :

1. This question paper consists of 2 sections, A and B. You are to attempt both sections seperately.
2. All questions are compulsory.
3. Questions 1 - 2 carry 1 mark each.
4. Questions 3 - 5 carry 2 marks each.
5. Questions 6 - 15 carry 3 marks each including a value based question.
6. Questions 16 - 21 carry 5 marks each.
7. Questions 22 - 27 are practical based questions and carry 2 marks each.

SECTION - A

1. Name a device that helps to maintain a potential difference across a conductor in a circuit.
2. Name the site of complete digestion.
3. Balance the following chemical equations.
   a) $HNO_3 + Ca(OH)_2 \rightarrow Ca(NO_3)_2 + H_2O$
   b) $BaCl_2 + K_2SO_4 \rightarrow BaSO_4 + KCl$
   State the observation made by Oersted on the basis of his experiment with current carrying conductor.
4. Name the cells which control the closing and opening of stomata? How do they perform this function?
5. When water is added to a white powder 'A' vigorous reaction takes place and a large amount of heat is released. The solution of 'A' is also used for white washing. Identify 'A'. Write a chemical equation for its reaction with water and name the product.
6. What is an electromagnet? Draw a circuit diagram to show how a soft iron piece can be transformed into an electromagnet.
7. After a vigorous exercise, you may experience muscular pain. Why does this happen?
8. State what happens when electricity is passed through an aqueous solution of sodium chloride? Write the balanced chemical equation. Name this process and why is it called so?
9. Differentiate between Resistance and Resistivity. Why are copper wires used as connecting wires?
10. a) What is biological magnification?
    b) What are biodegradable and non-biodegradable substances?
11. Write the chemical formula of Plaster of Paris. Write the balanced chemical equation for its preparation and mention its two uses.
12. "Damage to the Ozone layer is a cause of concern". Justify the statement. Suggest any two steps to limit this damage.
13. Mr. Das, a property dealer had many expensive appliances at his home like refrigerator, air conditioners, etc. but he forgot to put earth wire connections to these appliances. One day his younger daughter opened the fridge and suffered a severe electric shock though she was saved. Answer the following questions based on this situation.

a) Why did it happen?
b) How can one save himself / herself from electric shocks by such electrical appliances?
c) What values are being neglected by Mr. Das?

14. a) Name the plant hormones responsible for the following.
(i) Growth of stem (ii) Promotion of cell division (iii) Inhibits growth
b) Explain the feedback mechanism to regulate the action of hormones.

15. a) Two identical resistors each of resistance 10 ohm are connected in
(i) Series
(ii) Parallel, in turn, to a battery of 6v. Calculate the ratio of power consumed by the combination of resistors in the two cases.
b) List two factors on which the resistance of a conductor depends.

16. Calculate the heat generated while transferring 96,000 coulombs of charge in one hour through a potential difference of 50 V?

17. Give reasons for the following.
a) (i) White silver chloride turns grey in sunlight.
(ii) Oil and fat containing food items are flushed with nitrogen.
(iii) Brown coloured copper powder on heating changes to black in colour.
b) What do you mean by
(i) Displacement reaction? (ii) Precipitation reaction?

18. Describe the various types of tropic movements in plants.

19. What is an electric motor? State the principle on which electric motor works. List two factors on which the direction of motor or force depends. State the condition under which the force experienced by a current carrying conductor placed in a magnetic field is maximum.

20. Describe the structure and functioning of heart with the help of a diagram.

21. a) Like acids, compounds such as alcohol and glucose also contain hydrogen but these compounds are not categorized as acids. Why? Describe an activity to justify your answer.
b) A farmer treats the soil with quick lime or calcium carbonate. What is the nature of soil? Why does the farmer treat the soil with quick lime?

SECTION - B

22. A student dips pH papers in solutions A and B and observes that the pH papers turn blue and red respectively in them. What does he infer?

23. Why was the temporary mount of the leaf epidermal peel pinkish red under microscope?

24. An ammeter has 20 divisions between mark 0 and mark 2 on its scale. Find the least count of the ammeter.

25. A student poured a few drops of dil HCl to Zinc granules in a test tube. What does he observe? Write the chemical reaction involved in it.

26. What type of seeds is used in the experiment to show the CO_2 is given out during respiration?

27. Plot a graph which shows the dependence of current I on potential difference V across a resistor R.