VAGDEVI VILAS SCHOOL, MARTHAHALLI

MID-TERM EXAMINATION (2019-20)

STD : X **SCIENCE** **MAX MARKS: 80**

DATE:18/09/19 **DURATION: 3 hrs**

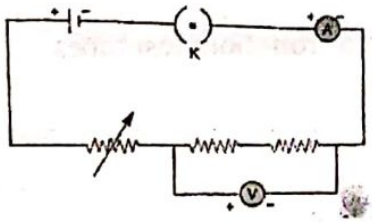
General Instructions:

i. The question paper comprises of 36 questions.
ii. All questions are compulsory.
iii. There is an internal choice in one marks, three marks each and five marks questions.
iv. Question numbers 1 to 20 are one mark questions.
v. Question numbers 21 to 30 are three marks questions.
vi. Question numbers 31 to 36 are five marks questions.

1. The given diagram shows an ammeter reading connected in a circuit. The value of current in the circuit is

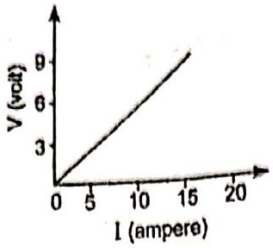
(a) 3.0A (b) 2.4A (c) 2.8A (d) 2.6A

2. To determine the equivalent resistance of two resistors when connected in series, a student arranged the circuit components as shown in figure. But he did not succeed to achieve it.



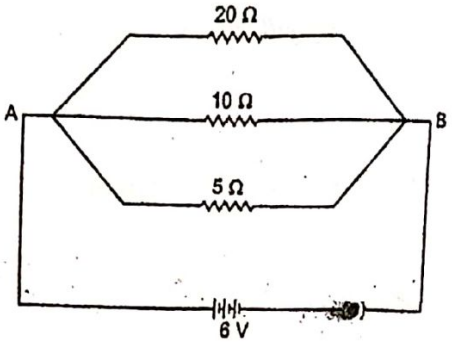
Which of the following mistakes has been committed by him in setting up the circuit?
(a) position of the ammeter is incorrect
(b) Position of voltmeter is incorrect
(c)Terminals of ammeter are wrongly connected
(d) Terminals of voltmeter are wrongly connected

3. The resistance whose V-I graph is given below is



(a) $\frac{5}{3}\Omega$ (b) $\frac{3}{5}\Omega$ (c) $\frac{5}{2}\Omega$ (d) $\frac{2}{5}\Omega$

4. Calculate the current flows through the 10Ω resistor in the following circuit.



(a) 1.2 A (b) 0.6A (c) 0.2A (d) 2.0A

5. A student living in an industrial area, dipped pH paper in rain water. The colour of the pH paper will turn to:

a) Blue b) green c) violet d) orange.

6. Equal lengths of magnesium ribbon are taken in two test tubes, A and B. dilute H_2SO_4 is added to test tube A and H_2CO_3 is added to test tube B in equal amounts. Out of the following which option is incorrect:

a) Test tube A will show vigorous reaction.
b) Hydrogen gas will be evolved from both test tubes.
c) The pH of test tube A will be higher.
d) The H^+ concentration in test tube A is higher than test tube B.

7. Solid sodium carbonate was placed on the pH paper. The colour of the pH paper turns to:

a) Blue b) orange c) green d) pink.

8. When zinc reacts with an aqueous solution of copper sulphate, the correct observation is:

a) Formation of colourless solution; reddish-brown deposits.
b) Formation of blue solution; reddish-brown deposits.
c) Formation of green solution; reddish-brown deposits.
d) Formation of reddish-brown solution; no deposit

9. Which one of the following organism shows budding?

(a) Amoeba (b) Paramecium (c) Hydra (d) Spirogyra

10. Among the following from which part of our brain is learning related to?

(a) Medulla oblongata (b) Cerebellum (c) Hypothalamus (d) Cerebrum

11. Name the plant hormones responsible for the following:

(a) Promotion of cell division (b) Inhibition of growth

(OR)

In the experiment "Light is essential for photosynthesis." Why does the uncovered part of the leaf turn blue black after putting Iodine solution?

12. Draw the diagram of simple domestic electric circuit?

13. Why does the cord of an electric heater not glow while the heating element does?

(OR)

Why are the conductors of electric heating devices, such as bread toaster and electric irons, made of an alloy rather than a pure metal?

14. List any two parameters on the basis of which source of energy can be categorized as a good source of energy?

15. Identify the substance oxidised, reduced, oxidising agent and reducing agent:

$$2PbO + C \rightarrow 2Pb + CO_2$$

16. What are olfactory indicators? Give two examples.

(OR)

What are amphoteric oxides? Give two examples.

17. Curd should not be stored in copper vessels. Why?

18. Why should the leaf peel be mounted in glycerine?

19. Why should the seeds be kept moist while conducting the experiment "CO_2 is given out during respiration."?

20. How does the use of KOH help to show that CO_2 is released during respiration in the experiment "CO_2 is given out during respiration."?

21. A coil of insulated copper wire is connected to a galvanometer. What will happen if the bar magnet is (i) Pushed into the coil (ii) withdrawn from the coil (iii) held stationary inside the coil?

(OR)

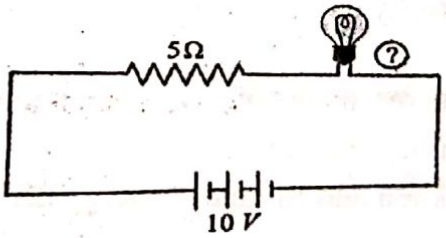
(a) What is a solenoid?

(b) Draw the pattern of magnetic field lines around a current carrying solenoid?

(c) Write one application of current carrying solenoid.

22. A current of 1 ampere flows in a series circuit containing an electric lamp and a conductor of 5Ω when connected to 10V battery. Calculate the resistance of the electric lamp?

Now if the resistance of 10Ω is connected in parallel with the series combination, what changes (if any) will take place in the current flowing through 5Ω conductor and potential difference across the lamp? Give reason.



23. (a) Describe how the electricity is generated in hydroelectric power plant?

(b) List two advantageous of producing hydroelectricity?

24. Answer the following:

(a) Show the formation of sodium oxide using electron dot structure.

(b) Why does reactivity of aluminium decrease when it is dipped in nitric acid?

(c) Give the composition of stainless steel.

(OR)

An ore, on treatment with dil. HCl produces brisk effervescence:

a) Name the type of ore with one example.

b) What steps would be required to obtain the metal from the concentrated ore. Write the chemical equations for the reaction involved in the process

25. 2g of lead nitrate is heated in a dry test tube:

(a) List two observations.

(b) Name the type of chemical reaction taking place.

(c) Write a balanced chemical equation for the reaction.

26. (a) State the chemical properties on which the following uses of baking powder are based:

(i)As an antacid

(ii) To make breads and cakes soft and spongy.

(b) Sodium chloride is neutral salt but sodium carbonate is basic salt. Justify.

27. (a) How is process of regeneration different from reproduction?

(b) Name the reproductive asexual bodies produced by Rhizopus and state any two importance of these structures.

28. (a) Taking the example of insulin. Explain the feedback mechanism of harmonic regulation.

(b) How is brain protected from injury and shock?

(c) Define reflex arc.

29. (a) In mammals and birds why is it necessary to separate oxygenated and deoxygenated blood?

(b) List any two conditions required for efficient gas exchange in an organism.

(c) How is the concentration of water in urine regulated?

(OR)

(a)What is transpiration? List its two functions.

(b)What is translocation? Why is it essential for plants?

(c)Write the function of valves present in between Atria and Ventricles.

30. (a) Explain any three directional movements in plants.

(b) Write any two differences between nervous control and chemical control.

31. What is an electric motor? Briefly explain its principle, construction and working?

(OR)

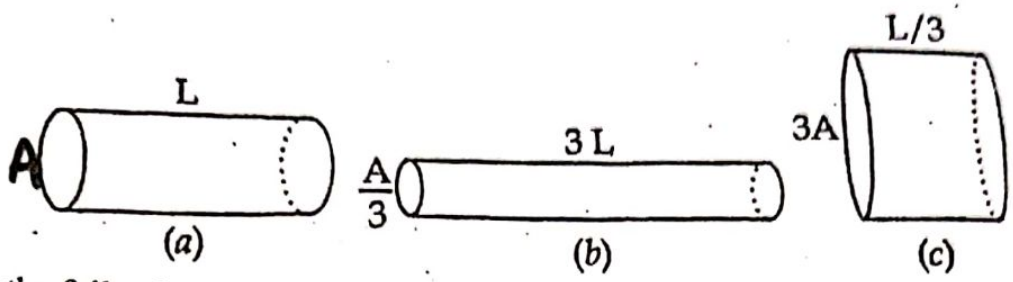
What is an electric generator? Briefly explain its principle, construction and working?

32. (a) Write the factors on which the resistance of a conductor depends.

(b) Give an expression for resistivity and define it?

(c) Establish a relation between kWh and SI unit of energy (J)?

(d)The figure shows three cylindrical copper conductors along with their face areas and lengths. Compare the resistance and resistivity of the three conductors. Justify your answer.



33. Answer the following:

(a)Why hydrogen is placed in the reactivity series of metals?

(b)Metals of high reactivity series cannot be reduced using reducing agents like carbon. Why?

(c)Only molten sodium chloride and not aqueous sodium chloride is used during electrolytic reduction. Give reason.

(d) Potassium metal moves vigorously when dropped into water taken in a beaker. Justify.

(e)Name and write a balanced chemical equation for the reaction which is used to join railway tracks.

34. (i) What are the different methods involved in concentration of ore. Write the principle involved in each method which helps to concentrate the ore.

(ii) Write the chemical name and formula of a compound of an element of group II which is also present in bones, the compound is white powder and turns yellowish in colour on exposure to atmosphere.

(OR)

Answer the following:

a) Fresh milk has a pH of 6. What will be the pH change as it turns to curd? Why?

b) Plaster of Paris is stored in moisture proof containers. Why?

c) Draw the electron dot structure of the compound formed when X (atomic number=17) reacts with Y (atomic number=20).

d) Identify the nature of above compound and write two physical properties of such compounds.

35. (a) Explain the different ways by which plants excrete waste.

(b)How does water and minerals get transported in plants?

(c)" The breathing cycle is rhythmic whereas exchange of gases is a continuous process. "Justify.

36. (a) Draw a diagram of human respiratory system Identify and label the following:

(i) part where air is filtered by fine hair and mucus.

(ii) part which separates chest cavity from abdominal cavity.

(b)Write the reaction that occurs when glucose breaks down anaerobically in yeast.

(OR)

Draw a sectional view of the human heart and label on it the following:

(i) Aorta (ii) Right ventricle

(a)How is required pH maintained in the stomach and small intestine?

(b)What is synapse?