

15. Why is the series arrangements not used in the domestic circuits?
16. What is the SI unit of magnetic field?

III Answer the following questions in two or three sentences each: 8x2=16

17. Draw a neat diagram of electrolysis of water and label the oxygen released part and the cathode.
18. Draw a neat diagram showing the structure of nephron.
19. What is the role of saliva in the digestion of food?
20. What are trophic levels? Name the different trophic levels.

OR

What are ecological pyramids? Name the type of pyramid, which is inverted.

21. How is food transported in plants?

OR

In respiration process how terrestrial organisms differ from an aquatic organism with regard to obtaining oxygen?

22. "Improvements in our life style has resulted in greater amount of waste generation". Justify your answer supporting the given statement.
23. The potential difference between the terminals of electric heater is 60V. When it draws a current of 4A from the source. What is the current will the heater draw, If the potential difference is increases to 120V?
24. 100J of heat is produced each second in a 4Ω resistance, find the potential difference across the resistor.

OR

How a solenoid does behave like a magnet? Can you define the North and south pole of a current carrying solenoid with the help of bar magnet, explain.

IV Answer the following questions in four or five sentences each: 9x3=27

25. Balance the following chemical equations:

- a. $\text{HNO}_3 + \text{Ca(OH)}_2 \rightarrow \text{Ca(NO}_3)_2 + \text{H}_2\text{O}$
b. $\text{NaOH} + \text{H}_2\text{SO}_4 \rightarrow \text{Na}_2\text{SO}_4 + \text{H}_2\text{O}$
c. $\text{NaCl} + \text{AgNO}_3 \rightarrow \text{AgCl} + \text{NaNO}_2$

OR

Zinc liberates hydrogen gas when reacted with dilute hydrochloric acid, whereas copper does not. Explain. Why?

26. Draw the diagram of the arrangement of apparatus to know that the reaction of zinc granules with dilute sulphuric acid and testing hydrogen gas.
27. A shiny brown coloured element 'X' on heating in air becomes black in colour. Name the element 'X' and the black coloured compounds formed.
28. Draw the diagram showing longitudinal section of human brain and label the following parts .
a. The part that interprets sensory information.
b. Part of hind brain responsible for balance of the body.
29. Arteries have thick elastic walls, but viens do not need thick walls. Answer the above statement with scientific reasons.
30. Which hormone regulates the blood sugar level? Explain the role of pancreas gland in this process.

OR

Explain the function of auxin hormone in the growth of plants. How it is different from the function of abscisic acid hormone in plants?

31. Define the rule to identify the direction of induced current in an electric generator. How can we increase the amount of electric current produced in the electric generator? Mention the property of the current produced by AC generator.

32. Write down the circuit diagram of three resistors which are connected in parallel and find the expression to find the total resistance of the circuit diagram.

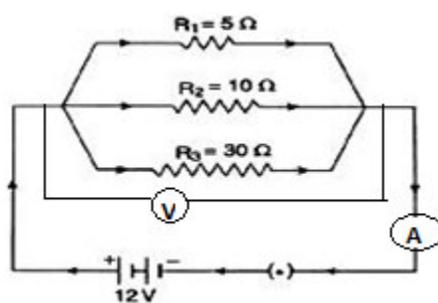
OR

An electric lamp whose resistance is $20\ \Omega$ and a conductor of $4\ \Omega$ resistance are connected to a 6V battery. Calculate

- Total resistance of the circuit
- The current through the circuit and
- The potential difference across the electric lamp and conductor.

33. In the circuit diagram given, suppose the resistors, R_1 , R_2 and R_3 have the values of $5\ \Omega$, $10\ \Omega$, and $30\ \Omega$ respectively. Which have been connected to a battery 12V . Calculate

- the current through each resistor
- the total current in the circuit and
- the total circuit resistance



V. Answer the following questions:

4x4=16

- Write the electron dot structure for oxygen, sodium and magnesium
- Show the formation of Na_2O and MgO by the transfer of electrons.
- What are the ions present in these compounds?

OR

- Differentiate between roasting and calcination
 - Common salt conducts electricity only in molten state. Why?
35. Explain the structure and function of neuron.

OR

Explain the breakdown of glucose by various pathways.

36. Explain the following:

- Why is the tungsten used almost extensively in filament of electric lamp?
- How does the resistance of a wire vary with its area of cross section?
- Why are copper and aluminium wires usually employed for electricity transmission?
- List out any two factors on which resistance of a conductor depends?

37. State the principle of electric generator and explain the working of a electric generator

VI Answer the following questions:

1x5=5

38. Identify the compound X on the basis of the reactions given below. Also write the name and chemical formula of A, B and C.

