THE VILLAGE
INTERNATIONAL SCHOOL

Question Bank - Grade10

Physics

Chapter 12

Electricity

Answer the following:

1) Define electric current.
2) What is an electric circuit?
3) How do we express electric current?
4) What is the direction of the electric current?
5) Define electric potential and potential difference.
6) Define 1 volt.
7) Name the instrument used to measure the potential difference?
8) State Ohm's Law.
9) Define 1 Ohm.
10) What do you mean by resistance?
11) What are the factors on which the resistance of a conductor depends? Expain.
12) What is resistivity?
13) What are the features of a series combination of resistance?
14) Expain the cause of heating due to current flow through a conductor.
15) What is joules law of heating?
16) Write some applications of joules law of heating.
17) Draw the symbols of commonly used components in electric circuit diagrams for
    a. An electric cell
    b. Open plug key
    c. Wires crossing without connection
    d. Variable resistor
    e. Battery

18) How Voltmeter and Ammeter are connected in a circuit?

19) What do you mean by effective resistance of a circuit?

20) Calculate the resistivity of the material of a wire of length 1 m, radius 0.01 cmand resistance 20 ohms.

21) .Calculate the resistance of a metal wire of length 2m and area of cross section 1.55×10^{6} m², if the resistivity of the metal be 2.8×10^{-8} Ωm

22) Explain the heating effect of electric current.

23) State Joule's law of heating.

24) What is electric power? What is its SI unit?

25) Define 1 unit of electric energy.

26) An electric motor takes 5 A from a 220 V line. Determine the power of the motor and the energy consumed in 5 hours.

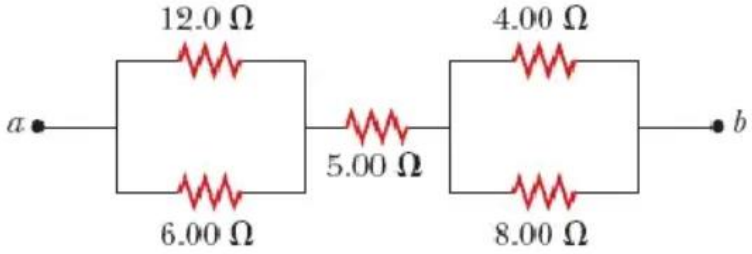
27) State the type of combination used for connecting different electric appliances in domestic circuit. Give reasons.

28) Derive an expression for the equivalent resistance of three resistors R1, R2 and R3 connected in series.

29) Derive an expression for the equivalent resistance of three resistors R1, R2 and R3 connected in parallel.

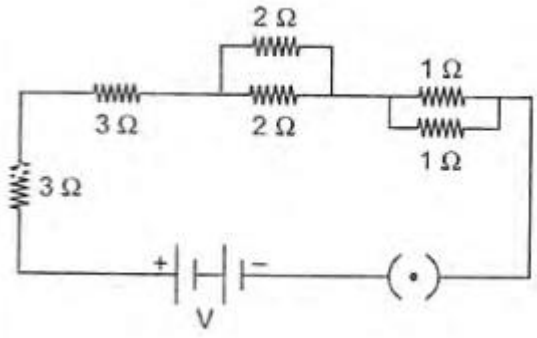
30) Derive an expression for Joule's law of heating. Give two examples for applications of heating effect of electric current.

31)
Calculate the net resistance between the points a and b in the circuit diagram shown.



32) State a difference between the wire used in the element of an electric heater and in a fuse wire.
33) Draw a schematic diagram of a circuit consisting of a cell of 1.5 volt, 10 ohm resistor and 15 ohm resistor and a plug key all connected in series.

34) Find the equivalent resistance of the following circuit:



35) Study the following circuit and answer the following questions

(a) State that type of combination of the two resistors in the circuit.
(b) How much current would flow through 10 ohm resistor and 15 ohm resistor?
(c) What would be the ammeter reading?