

1. Electricity is transmitted at:
 - (a) high voltage
 - (b) low voltage
 - (c) high current
 - (d) high frequency

2. An example of the use of renewable energy is:
 - (a) Pulverised Coal
 - (b) LPG gas
 - (c) Solar PV cells
 - (d) Diesel fuel

3. An example of the use of non renewable energy is:
 - (a) Wind
 - (b) Natural Gas
 - (c) Geo-thermal
 - (d) Hydroelectric

4. Geysers are examples of _____ energy:
 - (a) Tidal
 - (b) Wind
 - (c) Solar
 - (d) Geothermal

5. Renewable energy sources:
 - (a) Are constantly re-produced by the sun
 - (b) Can easily transmitted over long distances
 - (c) Are ideal as they all work 24/7 in all weather conditions
 - (d) Harm the ozone layer

6. Most renewable energy sources can be traced back to:
 - (a) The ozone layer
 - (b) Hydro energy
 - (c) Nuclear fission

(d) Solar Energy

7. When coal is burnt to produce electricity a gas is produced that causes global warming. The gas is known as:-

- (a) Carbon dioxide.
- (b) Ozone.
- (c) Oxygen.
- (d) Methane.

8. The meter used to measure electric current in a circuit is a:

- (a) ohmmeter
- (b) voltmeter
- (c) ammeter
- (d) megger

9. The opposition to electric current is termed:

- (a) amperes
- (b) voltmeter
- (c) residual
- (d) resistance

10. The unit of electric current is the:

- (a) ampere
- (b) watt
- (c) volt
- (d) ohm

11. If the electric pressure applied to a circuit is increased with the resistance remaining constant electric current will:-

- (a) remain the same
- (b) decrease
- (c) increase
- (d) decrease to zero

12. The meter used to measure electrical pressure in a circuit is a;

- (a) ohmmeter
- (b) ammeter
- (c) wattmeter.
- (d) voltmeter.

13. If the resistance of a circuit is doubled, the current will be:

- the same.
- doubled.
- halved.
- decreased

(b) Using the principle of Ohm's Law the resistance of a circuit may be calculated using the equation:

- $R = \frac{I}{V}$
- $R = V.I$
- $R = \frac{V}{I}$
- $R = V + I$

(c) If the resistance of a circuit is constant and the voltage applied to the circuit increased, the circuit current will:

- fall to zero
- decrease
- increase
- remain unchanged

14.

(d) A circuit has an applied voltage of 20V and a resistance of 5Ω . Determine the circuit current. (4A)

15. A circuit has the following values: $I = 0.15A$ $R = 150\Omega$
Determine the applied voltage. (22.5V)

- a. A circuit is connected to a DC power supply that is set to 12V. If the resistance of the circuit is 24Ω determine the current flowing in the circuit. (0.5A)
 - b. Determine the DC voltage that must be applied to a circuit of 56Ω resistance to cause a current of 0.5A to flow. (28V)
-

i.

(b)

16. Power in an electrical circuit is measured using an instrument called the:

- (a) wattmeter
- (b) volt/ammeter
- (c) kilowatt hour meter
- (d) ammeter.

17. Determine the power dissipated by a 27Ω resistor when connected to a 240V supply.
(2133W or 2.133kW or $2.133 \times 10^3\text{W}$)

Draw the circuit diagram of a 12Ω resistor connected to a 240V supply. Include in your diagram a/an –

(oo) fuse

- (pp) switch to control current flow
- (qq) ammeter to measure circuit current
- (rr) voltmeter to measure the applied voltage
- (ss) wattmeter to measure circuit power consumption.
- (tt) Determine the readings on all three meters.

$$(V = 240V, I = 20A, P = 4800W \text{ or } 4.8kW)$$

18.

1. The open circuit emf produced by a single dry cell is approximately:
 - (a) 0.5V
 - (b) 1.0V
 - (c) 1.5V
 - (d) 2.0V

19. A common device used to produce a small emf by having two different metals joined to form a junction is called a:

- (a) thermopile
- (b) thermocouple
- (c) piezoelectric cell
- (d) dry cell

20

All emf sources are forms of:

- (e) current generators
- (f) power converters
- (g) energy converters
- (h) charge storing devices

21. The equivalent circuit of a battery consisting of 2 x 1.8 volt cells is shown in figure 20. Determine the

- developed E.M.F (E)
- voltage on internal resistance (V_{R_i})
- terminal voltage (E).

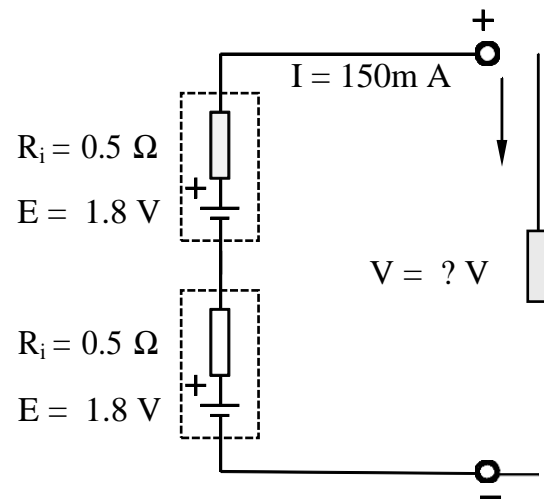


figure 20

22. Determine the voltage drop on resistor R_2 of figure 21. Use the voltage divider equation.

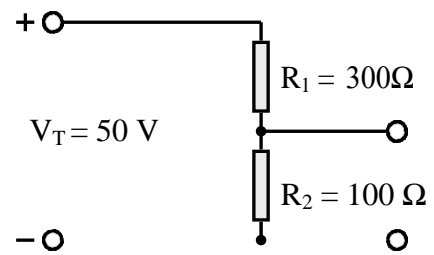


figure 21.

A resistor whose resistance remains constant with changes in external conditions is said to have a/an:

- (a) non-linear characteristic.
- (b) linear characteristic
- (c) constant characteristic.
- (d) inverse characteristic

24 The resistance of a voltage dependant resistor at normal working voltages is:

- (e) very high.
- (f) very low.
- (g) determined by the circuit power dissipation.
- (h) determined by the current flow in the circuit

25 The current in a series circuit, consisting of three resistors of equal resistance, is 12A. If two resistors are short circuited the current will then be:

- i. 36A
- ii. 4A
- iii. 12A
- iv. 0A