

Assignment

1- If 1 A current flows in a circuit, the number of electrons flowing through this circuit is:

- (a) 0.625×10^{19} (b) 1.6×10^{-19} (c) -7.369×10^{-16} (d) 9200

2- How much charge is represented by 4,600 electrons?

- (a) 1.6×10^{-19} (b) 9200 (c) -7.369×10^{-16} (d) None of the above

3- The resistivity of the conductor depends on

- (a) conductor diameter (b) conductor length (c) **type of material** (d) none of these

4- The resistance of a conductor of diameter d and length l is $R \Omega$. If the diameter of the conductor is halved and its length is doubled, the resistance will be:

- (a) $R \Omega$ (b) $2R \Omega$ (c) $4R \Omega$ (d) **$8R \Omega$**

5- How many coulombs of charge flow through a circuit carrying a current of 10 A in 1 minute?

- (a) 10 (b) 60 (c) **600** (d) 1200

6- An energy source forces a constant current of 2A for 10s to flow through a light bulb. If 2.3 kJ is given off in the form of light and heat energy, the voltage drop across the bulb is:

- (a) 20 v (b) 60 v (c) 90 v (d) **115 v**

7- The charge stored on a 3-pF capacitor with 20 V across it is:

- (a) 20 pC (b) 3 pC (c) 4 pC (d) **60 pC**

8- To obtain a high value of capacitance, the permittivity of dielectric medium should be

- (a) Low (b) Zero (c) **High** (d) Unity

9- Which of the followings is/are active element?

- (a) **Voltage source** (b) capacitor (c) resistor (d) None of the above.

10- Which of the followings is/are passive element?

- (a) capacitor (b) inductor (c) resistor (d) **All of the above**

11- How much energy does a 100-W electric bulb consume in two hours?

- (a) **200 W.h** (b) 100 W.h (c) 300 W.h (d) None of the above

12- A 10 ohms resistor is powered by a 5-V battery. The current flowing through the source is :

- (a) 10 A (b) 50 A (c) 2 A (d) **0.5 A**

13- If $P = 50$ watt and $R = 2$ ohms, then $I = \dots$?

- (a) 50 A (b) **5 A** (c) 10 A (d) 2 A

14- A relay with 100Ω resistance requires 50 mA to for operation. When connected to a 4 V source the relay will :

- (a) Operate (b) **Not operate** (c) Damage (d) None of the above

15- If the resistance of a load connected to a battery is increased, the amount of time the battery can supply current

- (a) **increases** (b) decreases (c) stays the same (d) None of the above

16- If the load is removed leaving the power supply terminals open, ideally the power supply output voltage

- (a) increases (b) decreases (c) **stays the same** (d) None of the above

17- If the voltage across a resistor increases from 5 V to 10 V and the current increases from 1 mA to 2 mA, the resistance

- (a) increases (b) decreases (c) **stays the same** (d) None of the above

18- When a 1.2 k Ω resistor and a 100 Ω resistor are connected in parallel, the total resistance is

- (a) greater than 1.2 k Ω (b) greater than 100 Ω but less than 1.2 k Ω
(c) **less than 100 Ω but greater than 90 Ω** (d) less than 90 Ω

19- In a certain three-branch parallel circuit, R1 has 10 mA through it, R2 has 15 mA through it, and R3 has 20 mA through it. After measuring a total current of 35 mA, you can say that

- (a) **R1 is open** (b) R2 is open (c) R3 is open (d) the circuit is operating properly

20- While putting four 1.5 V batteries in a four-cell flashlight (connected in series), you accidentally put one of them in backward. The voltage across the bulb will be

- (a) 6 V (b) 3 V (c) **4.5 V** (d) 0 V

21- If you measure all the voltage drops and the source voltage in a series circuit and add them together, taking into consideration the polarities, you will get a result equal to

- (a) the source voltage (b) the total of the voltage drops
(c) **zero** (d) the total of the source voltage and the voltage drops

22- If the current that a battery supplies to a load is increased, the battery life

- (a) increases (b) **decreases** (c) stays the same (d) None of the above

23- Materials in which there is no current when voltage is applied are called

- (a) filters (b) conductors (c) **insulators** (d) semiconductors

24- Internal resistance of ideal voltage source is

- (a) **zero** (b) infinite (c) finite (d) 100 ohms

25- Internal resistance of ideal current source is

- (a) zero (b) **infinite** (c) finite (d) 100 ohms

26- A capacitance carries a charge of 0.1C at 5V. its capacitance is

- (a) **0.02F** (b) 0.5F (c) 0.05F (d) 0.2F

27- Four capacitors each of 40 μ F are connected in parallel, the equivalent capacitance of the system will be

- (a) **160 μ F** (b) 10 μ F (c) 40 μ F (d) 5 μ F

28- Five capacitors each of 5 μ F are connected in series, the equivalent capacitance of the system will be

- (a) 5 μ F (b) 25 μ F (c) 10 μ F (d) **1 μ F**

29- 1F is theoretically equal to

- (a) 1ohm of resistance (b) ratio of 1V to 1C (c) **ratio of 1C to 1V** (d) None of the above

30- For all different capacitors connected in series, the charge on all of them is always.....and the voltage across them is.....

- (a) Different; Same (b) Same; Same (c) Different; Different (d) **Same; Different**