

## Electricity

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Question 1.

Assertion: When a battery is short circuited, the terminal voltage is zero.

Reason: In short circuit, the current is zero.

- (a) Both A and R are true and R is the correct explanation of A.
- (b) Both A and R are true but R is not the correct explanation of A.
- (c) A is true but R is false.
- (d) A is false but R is true.
- (e) Both A and R are false.

▼ [Answer](#)

- (c) A is true but R is false.
- 

Question 2.

Assertion: In an open circuit, the current passes from one terminal of the electric cell to another.

Reason: Generally, the metal disc of a cell acts as a positive terminal.

- (a) Both A and R are true and R is the correct explanation of A.
- (b) Both A and R are true but R is not the correct explanation of A.
- (c) A is true but R is false.
- (d) A is false but R is true.
- (e) Both A and R are false.

▼ [Answer](#)

- (d) A is false but R is true.
- 

Question 3.

Electrical resistivity of any given metallic wire depends upon

- (a) its thickness
- (b) its shape
- (c) nature of the material
- (d) its length

▼ [Answer](#)

- (c) nature of the material
- 

Question 4.

Two devices are connected between two points say A and B in parallel. The physical quantity that will remain the same between the two points is

- (a) current
- (b) voltage
- (c) resistance
- (d) None of these

▼ [Answer](#)

- (b) voltage
- 

Question 5.

100 J of heat is produced each second in a  $4\Omega$  resistor. The potential difference across the resistor will be:

- (a) 30 V



- (b) 10 V
- (c) 20 V
- (d) 25 V

▼ [Answer](#)

- (b) 10 V
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Question 6.

The resistivity of insulators is of the order of

- (a)  $10^{-8} \Omega\text{-m}$
- (b)  $10^1 \Omega\text{-m}$
- (c)  $10^{-6} \Omega\text{-m}$
- (d)  $10^6 \Omega\text{-m}$

▼ [Answer](#)

- (a)  $10^{-8} \Omega\text{-m}$
- 

Question 7.

An electric bulb is connected to a 220V generator. The current is 0.50 A. What is the power of the bulb?

- (a) 440 W
- (b) 110 W
- (c) 55 W
- (d) 0.0023 W

▼ [Answer](#)

- (b) 110 W
- 

Question 8.

The electrical resistance of insulators is

- (a) high
- (b) low
- (c) zero
- (d) infinitely high

▼ [Answer](#)

- (d) infinitely high
- 

Question 9.

When electric current is passed, electrons move from:

- (a) high potential to low potential.
- (b) low potential to high potential.
- (c) in the direction of the current.
- (d) against the direction of the current.

▼ [Answer](#)

- (b) low potential to high potential.
- 

Question 10.

The heating element of an electric iron is made up of:

- (a) copper
- (b) nichrome

- (c) aluminium
- (d) iron

▼ [Answer](#)

- (b) nichrome
- 

Question 11.

Coulomb is the SI unit of:

- (a) charge
- (b) current
- (c) potential difference
- (d) resistance

▼ [Answer](#)

- (a) charge
- 

Question 12.

Work done to move 1coulomb charge from one point to another point on a charged conductor having potential 10volt is

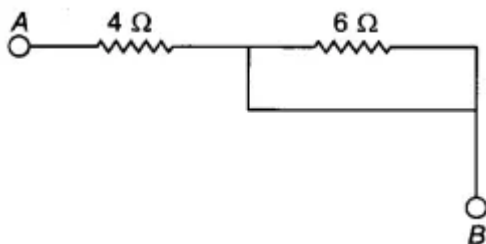
- (a) 1 Joule
- (b) 10 Joule
- (c) zero
- (d) 100 Joule

▼ [Answer](#)

- (c) zero
- 

Question 13.

The effective resistance between A and B is



- (a)  $4\ \Omega$
- (b)  $6\ \Omega$
- (c) May be  $10\ \Omega$
- (d) Must be  $10\ \Omega$

▼ [Answer](#)

- (a)  $4\ \Omega$
- 

Question 14.

A student says that the resistance of two wires of same length and same area of cross section is same. This statement is correct if

- (a) Both wires are of different materials
- (b) Both wires are made of same material and are at different temperature.
- (c) Both wires are made of same material and are at same temperature.
- (d) Both wires are made of different materials and are at the same temperature.

▼ [Answer](#)

(c) Both wires are made of same material and are at same temperature.

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Question 15.

A cooler of 1500 W, 200 volt and a fan of 500 W, 200 volt are to be used from a household supply. The rating of fuse to be used is

- (a) 2.5 A
- (b) 5.0 A
- (c) 7.5 A
- (d) 10 A

▼ [Answer](#)

- (d) 10 A
- 

Question 16.

If the current  $I$  through a resistor is increased by 100% the increased in power dissipation will be (assume temperature remain unchanged)

- (a) 100%
- (b) 200%
- (c) 300%
- (d) 400%

▼ [Answer](#)

- (c) 300%
- 

Question 17.

A coil in the heater consume power  $P$  on passing current. If it is cut into halves and joined in parallel, it will consume power

- (a)  $P$
- (b)  $P/2$
- (c)  $2P$
- (d)  $4P$

▼ [Answer](#)

- (d)  $4P$
- 

Question 18.

If  $R_1$  and  $R_2$  be the resistance of the filament of 40 W and 60 W respectively operating 220 V, then

- (a)  $R_1 < R_2$
- (b)  $R_2 < R_1$
- (c)  $R_1 = R_2$
- (d)  $R_1 \geq R_2$

▼ [Answer](#)

- (b)  $R_2 < R_1$
- 

Question 19.

A metallic conductor has loosely bound electrons called free electrons. The metallic conductor is

- (a) negatively charged
- (b) positively charged
- (c) neutral
- (d) Either positively charged or negatively charged



▼ Answer

(c) neutral

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Question 20.

To get 2  $\Omega$  resistance using only 6  $\Omega$  resistors, the number of them required is

- (a) 2
- (b) 3
- (c) 4
- (d) 6

▼ Answer

(b) 3

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Question 21.

Resistivity of a metallic wire depends on

- (a) its length
- (b) its shape
- (c) its thickness
- (d) nature of material

▼ Answer

(d) nature of material

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Question 22.

Assertion: Conductors allow the current to flow through themselves.

Reason: They have free charge carriers.

- (a) Both A and R are true and R is the correct explanation of A.
- (b) Both A and R are true but R is not the correct explanation of A.
- (c) A is true but R is false.
- (d) A is false but R is true.
- (e) Both A and R are false.

▼ Answer

(a) Both A and R are true and R is the correct explanation of A.

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Question 23.

Assertion: Bending of wire decreases the resistance of electric wire.

Reason: The resistance of a conductor depends on length, thickness, nature of material and temperature of the conductor.

- (a) Both A and R are true and R is the correct explanation of A.
- (b) Both A and R are true but R is not the correct explanation of A.
- (c) A is true but R is false.
- (d) A is false but R is true.
- (e) Both A and R are false.

▼ Answer

(a) Both A and R are true and R is the correct explanation of A.

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Question 24.

What is the commercial unit of electrical energy?

- (a) Joules



- (b) Kilojoules
- (c) Kilowatt-hour
- (d) Watt-hour

▼ [Answer](#)

- (c) Kilowatt-hour
- 

Question 25.

A boy records that 4000 joule of work is required to transfer 10 coulomb of charge between two points of a resistor of  $50\ \Omega$ . The current passing through it is

- (a) 2 A
- (b) 4 A
- (c) 8 A
- (d) 16 A

▼ [Answer](#)

- (c) 8 A
- 

Question 26.

A fuse wire repeatedly gets burnt when used with a good heater. It is advised to use a fuse wire of

- (a) more length
- (b) less radius
- (c) less length
- (d) more radius

▼ [Answer](#)

- (d) more radius
- 

Question 27.

Three resistors of  $1\ \Omega$ ,  $2\ \Omega$  and  $3\ \Omega$  are connected in parallel. The combined resistance of the three resistors should be

- (a) greater than  $3\ \Omega$
- (b) less than  $1\ \Omega$
- (c) equal to  $2\ \Omega$
- (d) between  $1\ \Omega$  and  $3\ \Omega$

▼ [Answer](#)

- (b) less than  $1\ \Omega$
- 

Question 28.

Which of the following gases are filled in electric bulbs?

- (a) Helium and Neon
- (b) Neon and Argon
- (c) Argon and Hydrogen
- (d) Argon and Nitrogen

▼ [Answer](#)

- (d) Argon and Nitrogen
- 

Question 29.

Electric power is inversely proportional to

- (a) resistance

- (b) voltage
- (c) current
- (d) temperature

▼ [Answer](#)

- (a) resistance
- 

Question 30.

An electric bulb is rated 220 V and 100 W. When it is operated on 110 V, the power consumed will be:

- (a) 100 W
- (b) 75 W
- (c) 50 W
- (d) 25 W

▼ [Answer](#)

- (d) 25 W
- 

Question 31.

1 mV is equal to:

- (a) 10 volt
- (b) 1000 volt
- (c)  $10^{-3}$  volt
- (d)  $10^{-6}$  volt

▼ [Answer](#)

- (c)  $10^{-3}$  volt
- 

Question 32.

A piece of wire of resistance  $R$  is cut into five equal parts. These parts are then connected in parallel. If the equivalent resistance of this combination is  $R'$ , then the ratio  $R/R'$  is:

- (a)  $1/25$
- (b)  $1/5$
- (c) 5
- (d) 25

▼ [Answer](#)

- (d) 25
- 

Question 33.

Electric potential is a:

- (a) scalar quantity
- (b) vector quantity
- (c) neither scalar nor vector
- (d) sometimes scalar and sometimes vector

▼ [Answer](#)

- (a) scalar quantity
- 

Question 34.

What is the maximum resistance which can be made using five resistors each of  $1/5 \Omega$ ?

- (a)  $1/5 \Omega$

- (b)  $10\ \Omega$
- (c)  $5\ \Omega$
- (d)  $1\ \Omega$

▼ [Answer](#)

- (d)  $1\ \Omega$
- 

Question 35.

A current of 1 A is drawn by a filament of an electric bulb. Number of electrons passing through a cross-section of the filament in 16 seconds would be roughly

- (a) 1020
- (b) 1016
- (c) 1018
- (d) 1023

▼ [Answer](#)

- (a) 1020
- 

Question 36.

The resistance of hot filament of the bulb is about 10 times the cold resistance. What will be the resistance of 100 W-220 V lamp, when not in use?

- (a)  $48\ \Omega$
- (b)  $400\ \Omega$
- (c)  $484\ \Omega$
- (d)  $48.4\ \Omega$

▼ [Answer](#)

- (c)  $484\ \Omega$
- 

Question 37.

The nature of the graph between potential difference and the electric current flowing through a conductor is

- (a) parabolic
- (b) circle
- (c) straight line
- (d) hyperbolic

▼ [Answer](#)

- (c) straight line
- 

Question 38.

Two resistors are connected in series gives an equivalent resistance of  $10\ \Omega$ . When connected in parallel, gives  $2.4\ \Omega$ . Then the individual resistance are

- (a) each of  $5\ \Omega$
- (b)  $6\ \Omega$  and  $4\ \Omega$
- (c)  $7\ \Omega$  and  $4\ \Omega$
- (d)  $8\ \Omega$  and  $2\ \Omega$

▼ [Answer](#)

- (b)  $6\ \Omega$  and  $4\ \Omega$
-



Question 39.

Resistivity of a metallic wire depends on

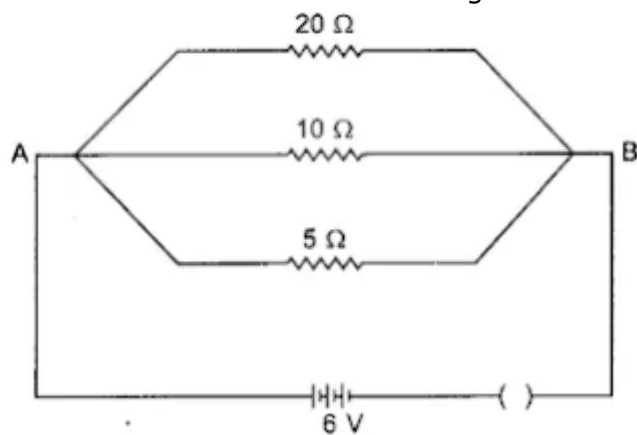
- (a) its length
- (b) its shape
- (c) its thickness
- (d) nature of material

▼ Answer

- (d) nature of material
- 

Question 40.

Calculate the current flows through the  $10\ \Omega$  resistor in the following circuit.



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

▼ Answer

- (b) 0.6 A
- 

Question 41.

The least resistance obtained by using  $2\ \Omega$ ,  $4\ \Omega$ ,  $1\ \Omega$  and  $100\ \Omega$  is

- (a)  $< 100\ \Omega$
- (b)  $< 4\ \Omega$
- (c)  $< 1\ \Omega$
- (d)  $> 2\ \Omega$

▼ Answer

- (c)  $< 1\ \Omega$
- 

Question 42.

A battery of 10 volt carries 20,000 C of charge through a resistance of  $20\ \Omega$ . The work done in 10 seconds is

- (a)  $2 \times 10^3$  joule
- (b)  $2 \times 10^5$  joule
- (c)  $2 \times 10^4$  joule
- (d)  $2 \times 10^2$  joule

▼ Answer

- (b)  $2 \times 10^5$  joule
-