Electricity

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 4Ω 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

Question 6.
The resistivity of insulators is of the order of
(a) 10-8 Ω-m
(b) 101 Ω-m
(c) 10-6 Ω-m
(d) 106 Ω-m

▼ Answer

(a) 10-8 Ω-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

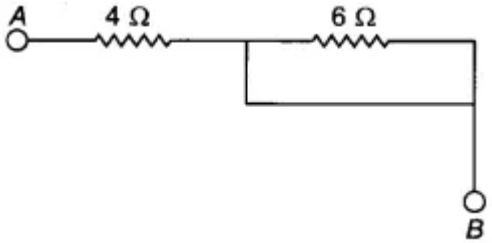
(a) charge

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) 4Ω
(b) 6Ω
(c) May be 10 Ω
(d) Must be 10 Ω

▼ Answer

(a) 4Ω

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.

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) R2 < R1

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

Question 20.
To get 2 Ω resistance using only 6 Ω resistors, the number of them required is
(a) 2
(b) 3
(c) 4
(d) 6

▼ Answer

(b) 3

Question 21.
Resistivity of a metallic wise depends on
(a) its length
(b) its shape
(c) its thickness
(d) nature of material

▼ Answer

(d) nature of material

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.

Question 23.
Assertion: Bending of wire decrease 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.

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 Ω. 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 Ω, 2 ft and 3 Ω are connected in parallel. The combined resistance of the three resistors should be
(a) greater than 3 Ω
(b) less than 1 Ω
(c) equal to 2 Ω
(d) between 1 Ω and 3 Ω

▼ Answer

(b) less than 1 Ω

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 W?
(a) 1/5 Ω

(b) 10 Ω
(c) 5 Ω
(d) 1 Ω

▼ Answer

(d) 1 Ω

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 Ω
(b) 400 Ω
(c) 484 Ω
(d) 48.4 Ω

▼ Answer

(c) 484 Ω

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 Ω. When connected in parallel, gives 2.4 Ω. Then the individual resistance are
(a) each of 5 Ω
(b) 6 Ω and 4 Ω
(c) 7 Ω and 4 Ω
(d) 8 Ω and 2 Ω

▼ Answer

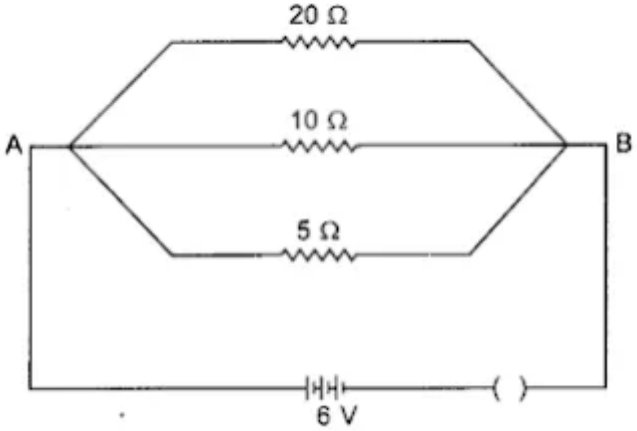
(b) 6 Ω and 4 Ω

Question 39.
Resistivity of a metallic wise 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 Ω 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 Ω, 4 Ω, 1 Ω and 100 Ω is
(a) < 100 Ω
(b) < 4 Ω
(c) < 1 Ω
(d) > 2 Ω

▼ Answer

(c) < 1 Ω

Question 42.
A battery of 10 volt carries 20,000 C of charge through a resistance of 20 Ω. The work done in 10 seconds is
(a) 2 × 103 joule
(b) 2 × 105 joule
(c) 2 × 104 joule
(d) 2 × 102 joule

▼ Answer

(b) 2 × 105 joule
