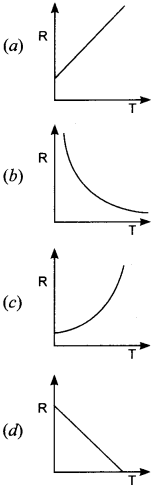
**MCQs Electricity**

Electricity Class 10 MCQ Question 1. A wire of length /, made of material resistivity ρ is cut into two equal parts. The resistivity of the two parts are equal to,  
(a) ρ  
(b) \(\frac{\rho}{2}\)  
(c) 2 ρ  
(d) 4 ρ

**Answer/Explanation**

Answer: a  
Explanation:  
(a) Resistivity of the material depends only on the nature of material not dimensions.

2. The temperature of a conductor is increased. The graph best showing the variation of its resistance is  


**Answer/Explanation**

Answer: a  
Explanation:  
(a) Resistance is directly proportional to temperature of the conductor.

3. 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 × 105joule  
(c) 2 × 104 joule  
(d) 2 × 102 joule

**Answer/Explanation**

Answer: b  
Explanation:  
(b) W= qV= 20000 × 10 = 2,00, 000 = 2 × 105 J

4. 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/Explanation**

Answer: c  
Explanation:  
(c) Work done in transferring the charge  
W= qV = qlR …….. (V = IR)

5. The resistance whose V-I graph is given below is

**Answer/Explanation**

Answer: b  
Explanation:  
(b) Resistance = slope line of V-I graph =

6. 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/Explanation**

Answer: b  
Explanation:  
(b) Three resistors of 2 Ω is required to get 6 Ω because resultant is more than individual so they all must be connected in series.

Electricity MCQ Question 7. Two wires of same length and area made of two materials of resistivity ρ1 and ρ2 are connected in series to a source of potential V. The equivalent resistivity for the same area is

**Answer/Explanation**

Electric Current And Its Effects Class 7 MCQ With Answer: c  
Explanation:  
(c) For same length and area of cross-section R ∝ p.  
For series combination, equivalent resistance is  
Rs = R1 + R2  
⇒ Ps = ρ1 + ρ2

8. 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/Explanation**

Answer: b  
Explanation:  
(b) In parallel combination, voltage remains same across two points.

9. 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/Explanation**

Electricity Class 10 MCQ With Answer: cExplanation:  
(c) In parallel combination, the equivalent resistance is smaller than the least resistance used in the circuit.

10. Two wires of same length and area, made of two materials of resistivity ρ1 and ρ2 are connected in parallel V to a source of potential. The equivalent resistivity for the same length and area is

**Answer/Explanation**

Answer: b  
Explanation:  
(b) Equivalent resistance in parallel combination is \(\frac{1}{R\_{P}}=\frac{1}{R\_{1}}+\frac{1}{R\_{2}}\)  
For the same length and area of cross-section, R ∝ p (resistivity)

Electricity Class 10 MCQ With Answers Pdf Question 11. 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/Explanation**

Answer: b  
Explanation:  
(b) In parallel, potential difference across each resistor will remain same. So, current through 10 Ω resistor  
I = \(\frac{V}{R}=\frac{6}{10}\) = 0.6 A

12. 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/Explanation**

Answer: b  
Explanation:  
(b) In series, Rs = R1 + R2 = 10 Ω

13. If R1 and R2 be the resistance of the filament of 40 W and 60 W respectively operating 220 V, then  
(a) R1 < R2  
(b) R2 < R1  
(c) R1 = R2  
(d) R1 ≥ R2

**Answer/Explanation**

Answer: b  
Explanation:  
(b) Using power, P = \(\frac{V^{2}}{R}\) or R = \(\frac{V^{2}}{P}\)  
For the same voltage, R ∝ \(\frac{1}{P}\)  
More the power, lesser the resistance.  
Accordingly, R2 < R1

Electricity MCQ Class 10 Question 14. 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/Explanation**

Answer: c  
Explanation:

15. If P and V are the power and potential of device, the power consumed with a supply potential V1 is

**Answer/Explanation**

Answer: c  
Explanation:

MCQ Questions for Class 10 Science Electricity Question 16. 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) \(\frac{P}{2}\)  
(c) 2P  
(d) 4P

**Answer/Explanation**

Answer: d  
Explanation:

17. 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/Explanation**

Answer: d  
Explanation:  
(d) In order to get the working of heater properly, fused wire of higher rating must be used.

18. 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/Explanation**

Answer: d  
Explanation:  
(d) Total power used, P = P1 + P1 = 1500 + 500 = 2000 W.  
Current drawn from the supply,

19. The effective resistance between A and B is

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

**Answer/Explanation**

Answer: a  
Explanation:  
(a) 6 Ω is shorted so effective resistance is 4 Ω.

MCQ Electricity Class 10 Question 20. A cell, a resistor, a key, and an ammeter are arranged as shown in the circuit diagrams. The current recorded in the ammeter will be [NCERT Exemplar Problems]  
(a) maximum in (i)  
(b) maximum in (ii)  
(c) maximum in (iii)  
(d) same in all the cases

**Answer/Explanation**

Answer: d  
Explanation:  
(d) Ammeter is always connected in series with in the circuit. The reading is independent from its location.

21. 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 [NCERT Exemplar Problems]  
(a) 1020  
(b) 1016  
(c) 1018  
(d) 1023

**Answer/Explanation**

Answer: a  
Explanation:  
(a) Q = ne and Q = It  
∴ ne = It

22. What is the maximum resistance which can be made using five resistors each of 1/5 W? [NCERT Exemplar Problems]  
(a) 1/5 Ω  
(b) 10 Ω  
(c) 5 Ω  
(d) 1 Ω

**Answer/Explanation**

Answer: d  
Explanation:  
(d) Series combination provide the maximum resistance.

23. A cylindrical conductor of length l and uniform area of cross-section A has resistance R. Another conductor of length 2l and resistance R of the same material has area of cross-section [NCERT Exemplar Problems]  
(a) A/2  
(b) 3A/2  
(c) 2A  
(d) 3A

**Answer/Explanation**

Answer: c  
Explanation:

24. A student carries out an experiment and plots the V-I graph of three samples of nichrome wire with resistances R1 R2 and R3 respectively. Which of the following is hue? [NCERT Exemplar Problems]

(a) R1 = R2 = R3  
(b) R1 > R2 > R3  
(c) R3 > R2 > R1  
(d) R2 > R3 > R1

**Answer/Explanation**

Answer: c  
Explanation:  
(c) Current is inversely proportional to the resistance for the same potential. So higher resistance would allow less current to pass through its which is shown by R3 as I3 < I2 < I1  
∴ R3 >R2 > R1

25. If the current I through a resistor is increased by 100 % (assume that temperature remains unchanged), the increase in power dissipated will be [NCERT Exemplar Problems]  
(a) 100%  
(b) 200%  
(c) 300 %  
(d) 400 %

**Answer/Explanation**

Answer: c  
Explanation:

26. The resistivity does not change if [NCERT Exemplar Problems]  
(a) the material is changed  
(b) the temperature is changed  
(c) the shape of the resistor is changed  
(d) both material and temperature are changed

**Answer/Explanation**

Answer: c  
Explanation:  
(c) The resistivity does not change if the shape of resistor is changed because nature of material will remain same.

27. In an electrical circuit two resistors of 2 Ω and 4 Ω respectively are connected in series to a 6 V battery. The heat dissipated by the 4 Ω resistor in 5 s will be [NCERT Exemplar Problems]  
(a) 5 J  
(b) 10 J  
(c) 20 J  
(d) 30 J

**Answer/Explanation**

Answer: c  
Explanation:  
(c) Total resistance of the combination  
Rs = 2 + 4 = 6 Ω  
Current, I = \(\frac{V}{R\_{s}}=\frac{6}{6}\)= 1  
Heat dissipation in 4 Ω resistor,  
H = I²Rt= 1² × 4 × 5 = 20 J

28. Electric potential is a:  
(a) scalar quantity  
(b) vector quantity  
(c) neither scalar nor vector  
(d) sometimes scalar and sometimes vector

**Answer**

Answer: a

Electricity Question 29. 1 mV is equal to:  
(a) 10 volt  
(b) 1000 volt  
(c) 10-3 volt  
(d) 10-6 volt

**Answer**

Answer: c

Electricity MCQ Question 30. Coulomb is the SI unit of:  
(a) charge  
(b) current  
(c) potential difference  
(d) resistance

**Answer**

Answer: a

31. 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**

Answer: b

32. The heating element of an electric iron is made up of:  
(a) copper  
(b) nichrome  
(c) aluminium  
(d) iron

**Answer**

Answer: b

33. The electrical resistance of insulators is  
(a) high  
(b) low  
(c) zero  
(d) infinitely high

**Answer**

Answer: d

34. Electrical resistivity of any given metallic wire depends upon  
(a) its thickness  
(b) its shape  
(c) nature of the material  
(d) its length

**Answer**

Answer: c

Electricity Class 10 MCQ Pdf Question 35. Which of the following is not correctly matched?

**Answer**

Answer: c

36. Electric power is inversely proportional to  
(a) resistance  
(b) voltage  
(c) current  
(d) temperature

**Answer**

Answer: a

MCQ Chapter Electricity Class 10 Question 37. What is the commercial unit of electrical energy?  
(a) Joules  
(b) Kilojoules  
(c) Kilowatt-hour  
(d) Watt-hour

**Answer**

Answer: c

38. 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/ Explanation**

Answer: b  
Explaination:

39. 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/ Explanation**

Answer: b  
Explaination:  
Here, V = 220 V, I = 0.50 A  
∴ Power (P) = VI = 220 x 0.50 = 110 W

40. 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**

Answer: a

41. 1 kWh = ……….. J  
(a) 3.6 × 10-6 J  
(b) \(\frac{1}{3.6}\) × 106 J  
(c) 3.6 × 106 J  
(d) \(\frac{1}{3.6}\) × 10-6 J

**Answer**

Answer: c

42. 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**

Answer: d

43. 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**

Answer: b

Direction (Q44 to Q48): In the following Questions, the Assertion and Reason have been put forward. Read the statements carefully and choose the correct alternative from the following:  
(a) Both the Assertion and the Reason are correct and the Reason is the correct explanation of the Assertion.  
(b) The Assertion and the Reason are correct but the Reason is not the correct explanation of the Assertion.  
(c) Assertion is true but the Reason is false.  
(d) The statement of the Assertion is false but the Reason is true.  
44. Assertion: When a battery is short circuited, the terminal voltage is zero.  
Reason: In short circuit, the current is zero.

**Answer/Explanation**

Answer: c  
Explanation:  
(c) Assertion is true but the Reason is false.

45. Assertion: Conductors allow the current to flow through themselves.  
Reason: They have free charge carriers.

**Answer/Explanation**

Answer: a  
Explanation:  
(a) Both the Assertion and the Reason are correct and the Reason is the correct explanation of the Assertion.

46. 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.

**Answer/Explanation**

Answer: d  
Explanation:  
(d) The statement of the Assertion is false but the Reason is true.

MCQ Questions on Electricity Class 10 Question 47. Assertion: The statement of Ohm’s law is K = IR  
Reason: V = IR is the equation which defines resistance.

**Answer/Explanation**

Answer: c  
Explanation:  
(c) Assertion is true but the Reason is false.

48. 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.

**Answer/Explanation**

Answer: a  
Explanation:  
(a) Both the Assertion and the Reason are correct and the Reason is the correct explanation of the Assertion.

49. Connecting many resistors in parallel, will \_\_\_\_\_\_\_\_\_\_\_\_ the resistance of the circuit.

**Answer/Explanation**

Answer:  
Explanation:  
(a) Equivalent resistance in parallel combination will be smaller than the lest resistance used in circuit.

50. Current is a \_\_\_\_\_\_\_\_\_\_\_\_ quantity.

**Answer/Explanation**

Answer:  
Explanation:  
(b) Current is a scalar quantity as it has no particular direction of flow.

51. Presence of argon prolongs the life of \_\_\_\_\_\_\_\_\_\_\_\_ .

**Answer/Explanation**

Answer:  
Explanation: Filament of electric bulb

52. Work done on unit charge is called as \_\_\_\_\_\_\_\_\_\_\_\_ .

**Answer/Explanation**

Answer:  
Explanation: Potential difference

53. Two resistors are in parallel when they have \_\_\_\_\_\_\_\_\_\_\_\_ common points.

**Answer/Explanation**

Answer:  
Explanation: One

54. 746 watts make \_\_\_\_\_\_\_\_\_\_\_\_ horse power.

**Answer/Explanation**

Answer:  
Explanation: One

55. Rheostat used in series in a circuit can make a bulb to glow with varying brightness. [True/False]

**Answer/Explanation**

Answer:  
Explanation: True

56. One common point and no sharing devices for that point are the conditions to be satisfied for two resistors to be in series. [True/False]

**Answer/Explanation**

Answer:  
Explanation: True

57. When bulbs are connected in series, the lower power bulb glows brighter. [True/False]

**Answer/Explanation**

Answer:  
Explanation: True

58. Nichrome is used for making standard resistances as it readily varies its resistance with temperature. [True/False]

**Answer/Explanation**

Answer:  
Explanation: False

Electricity Class 10 Question 59. The equivalent resistance between two diametrically opposite points as a wire of 10 Ω resistance is made a circle is 2.5 Ω. [True/False]

**Answer/Explanation**

Answer:  
Explanation: True

60. Devices of higher power used at home have lower resistance. [True/False]

**Answer/Explanation**

Answer:  
Explanation: True

Class 10 Electricity MCQ Question 61. 12 V means the work done to carry a unit charge from one point to another is 12 joule. [True/False]

**Answer/Explanation**

Answer:  
Explanation: True

Direction: Match Column I with Column II.  
62.

|  |  |
| --- | --- |
| Column I | Column II |
| (i) Fuse wires | A. Rheostat |
| (ii) Bulbs | B. Higher resistance |
| (iii) Higher power | C. Parallel |
| (iv) Potential divider | D. Series |
| (v) Lower current | E. Lower resistance |

**Answer/Explanation**

Answer:  
Explanation:  
(i) → D, Fuse wire always connected in series with live wire.  
(ii) → C, In household circuitrs, bulbs are connected in parallel to get the same p.d across each bulb for desired brightness.  
(iii) → E, P = \(\frac{V^{2}}{R}\)  
(iv) → A, Rheostat can also be used as a potential divider  
(v) → B From Ohm’s law, I ∝ \(\frac{1}{R}\).

63. Name the charge responsible for the conduction in a conductor?

**Answer/Explanation**

Answer:  
Explanation: Electron.

64. When two ends of a metallic wire are connected across the terminals of a cell, some potential difference is set up between its ends. In which direction, electrons are flowing through the conductors?

**Answer/Explanation**

Answer:  
Explanation:  
Direction of flow of electron: From a lower potential end of a metallic conductor to its higher potential end.

65. Electric current flows through a metallic conductor from its one end A to other end B. Which end of the conductor is at higher potential? Why?

**Answer/Explanation**

Answer:  
Explanation:  
Current always flow from a higher potential to a lower potential end of the conductor. So end ‘A’ of the conductor is at a higher potential.

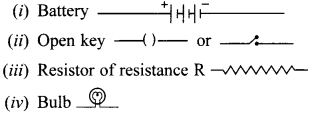
66. Is there any charge movement in a wire under normal conditions?

**Answer/Explanation**

Answer:  
Explanation:  
No, net motion is zero even though individual charge can move.

MCQ on Electricity Class 10 Pdf Question 67. Draw the following symbols:  
(i) Battery  
(ii) Open key  
(iii) Resistor of resistance R  
(iv) Bulb

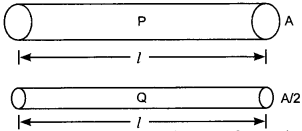
**Answer/Explanation**

Answer:  
Explanation:  


68. What is ohm? Define it.

**Answer/Explanation**

Answer:  
Explanation:  
One ohm is that resistance offered by the wire carrying 1A of current when IV is applied across its ends.

69. Out of the two wires P and Q shown below, which one has greater resistance? Justify it.  


**Answer/Explanation**

Answer:  
Explanation:  
Smaller the area of cross-section, greater will be resistance as R ∝ \(\frac{1}{A}\) . …(For the same length)  
So, wire has greater resistance.

70. What happens to resistance of a conductor when its area of cross-section is increased? [CBSE 2011]

**Answer/Explanation**

Answer:  
Explanation:  
Resistance decreases as R ∝ \(\frac{1}{A}\).

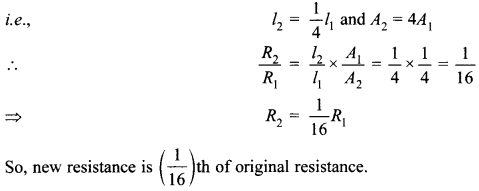
71. The radius of conducting wire is doubled. What will be the ratio of its new specific resistance to the old one?

**Answer/Explanation**

Answer:  
Explanation:  
1 : 1, as it depends on the nature of material only.

72. A given length of a wire is doubled on itself and this process is repeated once again. By what factor does the resistance of the wire change? [CBSE 2011]

**Answer/Explanation**

Answer:  
Explanation:  
Length becomes one-fourth of the original length and area of cross-section becomes four times that of original.  


73. Name the scientist who first studied  
(i) current  
(ii) resistance in detail.

**Answer/Explanation**

Answer:  
Explanation:  
(i) Andre – Marie, Ampere  
(ii) Georg – Simon, Ohm.

74. Resistance of an incandescent filament of a lamp is comparatively much more than that when it is at room temperature. Why? [HOTS]

**Answer/Explanation**

Answer:  
Explanation:  
When bulb is switched on (i.e., incandescent state), the temperature of filament rises. As the temperature increases, the resistance of conductor also increases.

75. Why is magnanin used for making standard resistors?

**Answer/Explanation**

Answer:  
Explanation:  
Magnanin being an alloy has a low temperature coefficient of resistance.

76. A resistance of 1 k Ω has a current of 0.25 A throughout it when it is connected to the terminals of a battery. What is the potential difference across the ends of a resistor.

**Answer/Explanation**

Answer:  
Explanation:  
From Ohm’s law,  
V = IR = 0.25 × 1000 = 250 V

77. Calculate the current in a circuit if 500 C of charge passes through it in 10 minutes.

**Answer/Explanation**

Answer:  
Explanation:  
Given: Q = 500 C, t = 10 min. = 10 × 60 = 600 s.  
MCQ Questions for Class 10 Science Electricity with Answers 25

78. An electric iron draws a cu,.ent of 0.6 A when the voltage is 100 volt Calculate the amount of electric charge flowing through it in one hour.

**Answer/Explanation**

Answer:  
Explanation:  
As we know, Q = I × t  
∴ Q = 0.6 × 3600 = 2160 C

79. Define the term resistivity. [DoE]

**Answer/Explanation**

Answer:  
Explanation:  
The resistance offered by a wire of unit length and unit cross-sectional area is called resistivity. It is expressed in terms of ohm-metre (Q-m).

80. Write S.I. unit of resistivity. [CBSE 2015]

**Answer/Explanation**

Answer:  
Explanation: Ohm-metre.

81. How will the resistivity of a conductor change when its length is tripled by stretching it?

**Answer/Explanation**

Answer:  
Explanation:  
The resistivity of a metallic conductor does not depend on the length of the wire, so it will remain same.

82. When a battery is connected to a closed circuit, charge flow in the circuit almost instantaneously. Explain.

**Answer/Explanation**

Answer:  
Explanation:  
As soon as the battery is connected to the circuit and circuit is closed, a potential difference is felt over the entire circuit. This causes the charges begin to flow.

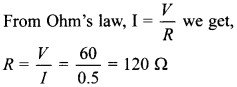
83. Why is closed path required for the flow of current?

**Answer/Explanation**

Answer:  
Explanation:  
It makes possible to move the electrons in a particular direction, so closed path is necessary for the flow of current.

84. A lamp draws a current of 0.5 A when it is connected to a 60 V source. What is the resistance of the lamp?

**Answer/Explanation**

Answer:  
Explanation:  


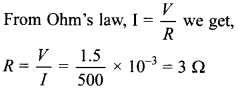
85. Why is a series arrangement not used for connecting domestic electrical appliances in a circuit?

**Answer/Explanation**

Answer:  
Explanation:  
If any one stops working due to some reason, other will also stop working.

86. A torch bulb is rated at 1.5 V, 500 mA. Find its resistance.

**Answer/Explanation**

Answer:  
Explanation:  


Fill in the Blanks

1. The SI unit of current is ……… .  
2. According to ……… Law, the potential difference across the ends of a resistor is directly proportional to the ……… through it, provided its remains constant.  
3. The resistance of a conductor depends directly on its ……… , inversely on its ……… and also on the ……… of the conductor.  
4. The SI unit of resistivity is ……… .  
5. If the potential difference across the ends of a conductor is doubled, the current flowing through it, gets ……… .

Answers

1. ampere  
2. Ohm’s, current, temperature  
3. length, area of cross-section, material  
4. ohm-metre (Ω m)  
5. doubled