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Daily Practice Problems

NEET PHYSICS

Topic: Current electricity

Q.1 A current of 5 Amp exist on a 10 ohm resistance for 4 min. How much charge pass through any cross-section of the resistor in this time ?

(1) 12 coulombs (2) 120 coulombs

(3) 1200 coulombs (4) 12000 coulombs

Q.2 The electric current in a liquid is due to the flow of -

(1) electron only

(2) positive ions only

(3) negative and positive ions both

(4) electrons and positive ions both

Q.3 The electric current in a discharge tube containing a gas is due to -

(1) electron only

(2) positive ions only

(3) negative ion and positive ions both

(4) electrons and positive ions both

Q.4 A steady current is passing through a linear conductor of non-uniform cross-section. The net quantity of charge crossing any cross-section per second is -

(1) independent of area of cross-section

(2) directly proportional to the length of conductor

(3) directly proportional to the area of cross-section

(4) inversely proportional to the lengths of conductor

Q.5 A current (I) flows through a uniform wire of diameter (d) when the mean drift velocity is v. The same current will flow through a wire of diameter d/2 made of the same material if the mean drift velocity of the electron is -

(1) v/4 (2) v/2

(3) 4v (4) 2v

Q.6 A wire of non-uniform cross-section is carrying a steady current. Along the wire -

(1) current and current density are constant

(2) only current is constant

(3) only current density is constant

(4) neither current nor current density is a constant

Q.7 When a potential difference (V) is applied across a conductor , the thermal speed of electrons is -

(1) zero (2) proportional to $\sqrt{T}$

(3) proportional to (T) 4) proportional to V

Q.8 Specific resistance of a wire depends on the

(1) length of the wire

(2) area of cross–section of the wire

(3) resistance of the wire

(4) material of the wire

Q.9 A cross–sectional area of a copper wire is 3×10^{-6} m^2. The current of 4.2 amp is flowing through it. The current density in amp/m^2 through the wire is –

(1) 1.4×10^3 (2) 1.4×10^4

(3) 1.4×10^5 (4) 1.4×10^6

Q.10 The resistance of some substances become zero at very low temperature , then these substances are called –

(1) good conductors (2) super conductors

(3) bad conductors (4) semi conductors

Q.11 The resistance of wire is 20Ω. The wire is stretched to three times its length. Then the resistance will now be –

(1) 6.67 Ω (2) 60 Ω

(3) 120 Ω (4) 180 Ω

Q.12 The dimensions of a mangnin block are 1 cm × 1 cm × 100 cm. The electrical resistivity of mangnin is 4.4×10^{-7} ohm–meter. The resistance between the opposite rectangular faces is –

(1) 4.4×10^{-7} ohm (2) 4.4×10^{-3} ohm

(3) 4.4×10^{-5} ohm (4) 4.4×10^{-1} ohm

Q.13 If the temperatures of iron and silicon wires are increased from 30ºC to 50ºC, the correct statement is–

(1) resistance of both wires increase

(2) resistance of both wires decrease

(3) resistance of iron wire increases and the resistance of silicon wire decreases

(4) resistance of iron wire decreases and the resistance of silicon wire increases

Q.14 When the resistance of copper wire is 0.1Ω and the radius is 1 mm, then the length of the wire is

(specific resistance of copper is 3.14×10^{-8} ohm × m) -

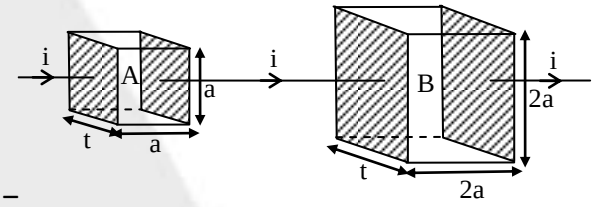
(1) 10 cm (2) 10 m (3) 100 m (4) 100 cm

Q.15 When the resistance wire is passed through a die the cross–section area decreases by 1%, the change in resistance of the wire is -

(1) 1% decrease (2) 1% increase

(3) 2% decrease (4) 2% increase

Q.16 In the following diagram two parallelepiped A and B are of the same thickness. The arm of B is double that of A.



Compare these resistances and find out the value of R_A/R_B is –

(1) 1 (2) 2 (3) $\frac{1}{2}$ (4) 4

Q.17 When the temperature of a metallic conductor is increased its resistance -

(1) always decreases

(2) always increases

(3) may increase or decrease

(4) remains the same

Q.18 The resistance of a semi-conductors -

(1) increases with increase of temperature

(2) decreases with increase of temperature

(3) does not charge with charge of temperature

(4) first decreases and then increases with increase of temperature

Q.19 Ohm's law is valid when the temperature of the conductor is -

(1) constant (2) very high

(3) very low (4) varying

Q.20 A certain piece of copper is to be shared into a conductor of minimum resistance . Its length and diameter should be respectively -

(1) ℓ , d (2) 2ℓ , d

(3) ℓ/2 , 2d (4) 2ℓ , d/2

Q.21 A wire has a resistance of 10Ω . A second wire of the same material is having length double and radius of cross-section half that of the wire. The resistance of the second wire is -

(1) 20Ω (2) 40Ω (3) 80Ω (4) 10Ω

Q.22 A cylindrical copper rod is reformed to twice its original length with no change in volume. The resistance between its ends before the change was (R). Now its resistance -

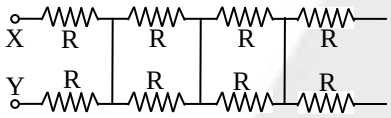
(1) 8R (2) 6R (3) 4R (4) 2R

Q.23 The length of a conductor is halved. Its conductance will be -

(1) halved (2) unchanged

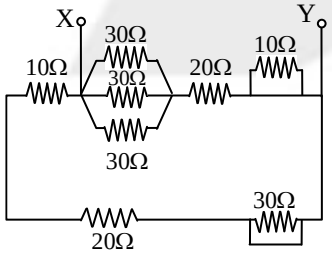
(3) doubled (4) quadrupled

Q.24 Net resistance between X and Y is –



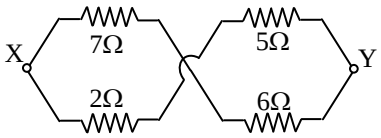
(1) R (2) 2R (3) $\frac{R}{2}$ (4) 4R

Q.25 Net resistance between X and Y is -



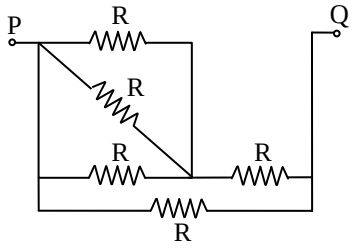
(1) 5 Ω (2) 10 Ω (3) 15 Ω (4) 60 Ω

Q.26 Net resistance between X and Y is -



(1) 4 Ω (2) 4.55 Ω (3) 2 Ω (4) 20 Ω

Q.27 The equivalent resistance between the terminal point P and Q is 4Ω in the given circuit, then find out the resistance of R in ohms -



(1) 7 (2) 4 (3) 2 (4) 5

Q.28 At a point Σi = 0 in a circuit with one emf source, then-

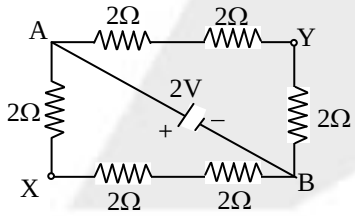
(1) the resistance of the circuit is zero

(2) the point is the junction point

(3) the emf of the source is infinity

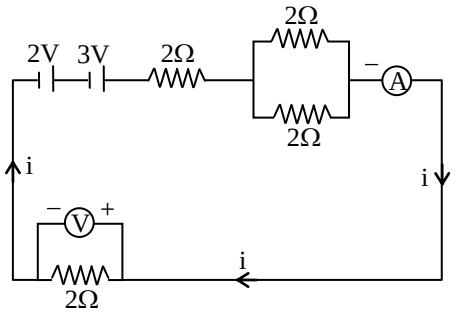
(4) this is not possible

Q.29 For the following circuits, the potential difference between X and Y in volt is –



(1) $\frac{2}{3}$ (2) $\frac{4}{3}$ (3) $\frac{8}{9}$ (4) $\frac{5}{3}$

Q.30 Reading of ideal .ammeter in ampere for the following circuit is –



(1) 1 (2) 2 (3) 3 (4) 4

ANSWER KEY

Que.	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**
Ans.	3	3	4	1	3	2	2	4	4	2
Que.	**11**	**12**	**13**	**14**	**15**	**16**	**17**	**18**	**19**	**20**
Ans.	4	1	3	2	4	1	2	2	1	3
Que.	**21**	**22**	**23**	**24**	**25**	**26**	**27**	**28**	**29**	**30**
Ans.	3	3	3	2	3	2	1	2	1	1