Q 1. Electric current has both magnitude and direction. It is a;
(1) Vector quantity (2) Scalar quantity (3) Tensor quantity (4) None of these

Q 2. The rate of flow of electric charges through any cross-section of a conductor is known as
(1) Electric flux (2) Electric potential (3) Electric current (4) Electric field

Q 3. Across a metallic conductor of non-uniform cross-section a constant potential difference is applied. The quantity which remains constant along the conductor is;

(1) Current (2) Drift velocity (3) Electric field (4) Current density

Q 4. A wire has a non-uniform cross-sectional area as shown in the figure. A steady current flows through it. Which one of the following statements is correct

1.) The drift speed of the
electron is constant
(2) The drift speed increases on moving from A to B (3) The drift speed decreases on moving from A to B (4) The drift speed varies randomly
(3)

Q 5. Statement I: The drift velocity of an electron is doubled if the electric field applied across the conductor is doubled.
Statement II: The drift velocity of an electron is directly proportional to the electric field applied across the conductor.
1.)Statement-I and Statement-II both are correct. (2) Statement I is correct but Statement II is incorrect. (3) Statement I is incorrect but Statement II is correct. (4) Statement-I and Statement-II both are incorrect.

Q 6. A potential difference of V is applied at the ends of a copper wire of length l and diameter d. On doubling only d, drift velocity
(1) Becomes two times (2) Becomes half (3) Does not change (4) Becomes one fourth

Q 7. A current flows in a wire of circular cross-section with the free electrons traveling with a mean drift velocity v. If an equal current flows in a wire of twice the radius new mean drift velocity is;

(1) v (2) v/2 (3) v/4 (4) None of these

(2)

Q 7. Two wires A and B of the same material, having radii in the ratio 1:2 and carry currents in the ratio 4:1. The ratio of drift speeds of electrons in A and B is;

(1) 16:1 (2) 1:16 (3) 1:4 (4) 4:1

(2)

Q 8. A current 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

(2)

Q 9. Assertion (A): Current and time both have direction as well as magnitude but still are not considered vectors.
Reason (R): They do not follow the laws of vector addition.

(1) Both Assertion (A) and Reason (R) are true and Reason (R) is a correct explanation of Assertion (A). (2) Both Assertion (A) and Reason (R) are true but Reason (R) is not a correct explanation of Assertion (A). (3) Assertion (A) is true, and Reason (R) is false. (4) Assertion (A) is false, and Reason (R) is true.

(2)

Q 10. Assertion (A): The drift velocity of electrons in a conductor is very small when its two ends are connected to a battery.
Reason (R): It is because, as the electrons accelerate, they get deflected on suffering collisions against the positive ions in the conductor.

(1) Both Assertion (A) and Reason (R) are true and Reason ® is a correct explanation of Assertion (A). (2) Both Assertion (A) and Reason (R) are true but Reason (R) is not a correct explanation of Assertion (A) (3) Assertion (A) is true, and Reason (R) is false. (4) Assertion (A) is false, and Reason (R) is true.

(2)

Q 11. The current passing through a conductor is 5 ampere. The charge that passes through that conductor in 5 minutes is;

(1) 1200 C (2) 300 C (3) 1000 C (4) 1500 C

Q 12. Ohm's law is true.

(1) For metallic conductors at constant temperature. (2) For metallic conductors at variable temperatures. (3) For electrolytes when current passes through them. (4) For diode when current flows.

(2)

Q 13. The masses of three wires of copper are in the ratio of 1 : 3: 5 and their lengths are in the ratio of 5 : 3: 1 The ratio of their electrical resistances is;

(1) 5 : 3: 1 (2) 1 : 3: 5 (3) 1: 15: 125 (4) 125: 15: 1

(2)

Q 14. Three copper wires of length and cross-sectional area (L, A), (2L, A/2), and (L/2, 2A). Resistance is minimal in; (1) Wire of cross-sectional area A (2) Wire of area A/2 (3) Wire of cross-sectional area 2A (4) Same in all three cases

Q 15. A Wire of 1Ω has a length of 1m. It is stretched till its length increases by 25%. The percentage change in resistance to the nearest integer is;

(1) 76% (2) 56% (3) 12.5% (4) 25%

(2)

Q 16. A wire of a certain material is stretched slowly by 10%. Its new resistance and specific resistance become respectively:

(1) 1.2 times, 1.3 times (2) 1.21 times, same (3) both remain the same (4) 1.1 times, 1.1 times

(2)

Q 17. An aluminum wire is stretched to make its length, 0.4% larger. The percentage change in resistance is;

(1) 0.4 % (2) 0.2 % (3) 0.8 % (4) 0.6 %

Q 18. A copper wire is stretched to make it 0.5% longer. The percentage change in its electrical resistance if its volume remains unchanged is;

(1) 2.0% (2) 2.5% (3) 1.0% (4) 0.5%

Q 19. A wire of resistance R1 is drawn out so that its length is increased by twice of its original length. The ratio of new resistance to original resistance is;

(1) 9: 1 (2) 1: 9 (3) 4: 1 (4) 3: 1

Q 20. A wire of resistance 4Ω is stretched to twice its original length. The resistance of a stretched wire would be;

(1) 4Ω (2) 8Ω (3) 16Ω (4) 2Ω

(ANSWERS-Q1.(2) Q2.(3) Q3.(1) Q4.(3) Q5.(1) Q6.(3) Q7.(1) Q8.(3) Q9.(1) Q10.(2) Q11.(4) Q12.(1) Q13.(4) Q14.(3) Q15.(2) Q16.(2) Q17.(3) Q18.(3) Q19.(1) Q20.(3)