CLASS X
SAMPLE PAPER
SCIENCE

MULTIPLE CHOICE QUESTIONS

1. The Magnitude of charge on electron is

   (a) 4×10^{-19} C (b) 2.6×10^{-19} C
   (c) 1.6×10^{-19} C (d) $1.6 \times 10^{+19}$ C

2. 1 Coulomb charge is equivalent to
   (a) 6×10^{15} electrons (b) 6×10^{17} electrons
   (c) 6×10^{18} electrons (d) 1 electron

3. 1 volt = ……..
   (a) 1joule / coulomb
   (b) 1coulomb/joule
   (c) 1 joule/coulomb^2
   (d) 1joule/coulomb

4. Unit of electric potential is
   (a) ampere (b) volt
   (c) Coulomb (d) joule

5. Work done to move a charge from one point to another of a conductor is
   (a) Electric potential
   (b) potential difference
   (c) electric field
   (d) electric current

6. Unit of electric current is
   (a) joule (b) coulomb
   (c) ohm (d) ohm

7. Unit of resistance is
   (a) coulomb (b) ampere
   (c) volt (d) ohm

8. Resistance of metallic conductor
   (a) increases with the increase in temperature
   (b) increases with the decrease in temperature
   (c) decreases with the increase in temperature
   (d) none of these
9. Resistance of a conductor varies
   (a) inversely proportional to its length
   (b) inversely proportional to square of its length
   (c) directly proportional to its length
   (d) directly proportional to square of its length
10. Resistivity of a conductor
   (a) increases with the increase of its area
   (b) increases with the increase of its length
   (c) decreases with the decrease of its length
   (d) is independent of the change in its area and length

11. Two resistances1Ω and 2Ω are connected in series and then in parallel. The ratio of the effective resistance of series and parallel combination of resistance is
   (a) 2:9 (b) 9:2
   (c) 3:1 (d) 1:2
12. A wire of resistance R is cut into five equal pieces. These pieces are connected in parallel and the equivalent resistance of the combination is 'R'. Then the ratio R/R' is
   (a) $\frac{1}{5}$ (b) 5
   (c) $\frac{1}{25}$ (d) 25

13. Which of the following expressions does not represent the electric power in the circuit?
   (a) VI (b) $\frac{I^2}{R}$
   (c) $\frac{V^2}{R}$ (d) I^2R

14. An electric heater is rated 100W and 220V. If it is operated on 110V, the power consumption will be :
   (a) 10W (b) 25W
   (c) 15W (d) 100W

15. Electric power is given by
(a) V/I (b) I/V
(c) VI (d) V^2I

16. Which is not the unit of energy?
(a) joule (b) kWh
(c) kWs (d) kW

17. Work done to move 1 coulomb 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

18. 15 joule of work is done to bring 1 coulomb charged from infinity to a point. The potential at that point is
(a) zero (b) 10 V
(c) 15 V (d) 1/30 V

19. A current of 0.5 A passes through a conductor in 2s. How many electrons flow through the conductor from its one end to the other end during this interval of time?
(a) 6×10^{18} electrons
(b) 0.6×10^{18} electrons
(c) 6.52×10^{18} electrons
(d) 6.25×10^{18} electrons

20. The resistance of a conductor is R. If its length is doubled, then its new resistance will be
(a) R (b) 2R
(c) 4R (d) 8R

21. Manganin is an alloy of
(a) copper and nickel
(b) copper and manganese
(c) copper, manganese and nickel
(d) copper, manganese and aluminium

22. If the length a conductor having resistivity 1.5×10^{-8} ohm-m is doubled, its new Resistivity will be
(a) 2.0×10^{-8} ohm-m
(b) 1.5×10^{-8} ohm-m
(c) 6.6×10^{-8} ohm-m
(d) 1×10^{-8} ohm-m

23. Calculate the length of aluminium wire of area of cross-section 1 mm^2 whose resistance is 1.56 x 10^{-2} ohm. Given resistivity of aluminium is 2.6 x 10^{-8} ohm-m.
(a) 60 mm (b) 60 cm
(c) 60 m (d) 6 m

24. Two conductors each of resistance R Ohm are connected in series and then in parallel. Find the ration of the resistance of the combination in series and in parallel.
(a) 1 (b) 2
(c) 4 (d) 6

25. A conductor of resistance 10Ω is connected to a cell of e.m.f. 2V. The current flowing through the conductor is
(a) 2 A (b) 0.2A
(c) 20 A (d) 5 A

26. A current of 0.1A flows through a conductor of resistance 10 Ω. The potential difference across the ends of the conductor is
(a) 10 V (b) 100 V
(c) 1V (d) 0.1V

27. The amount of heat produced in a conductor is
(a) directly proportional to the current flowing though it.
(b) inversely proportional to the current flowing through it.
(c) directly proportional to the square of the current flowing through it
(d) inversely proportional to the square of current flowing through it.

28. 1 horse power is equal to
(a) 700 W (b) 726 W
(c) 736 W (d) 746 W

29. The amount of heat energy produced in 5 minutes by an electric heater rated at 1000 W is
(a) 2 x 10^5 J (b) 3 x 10^5 J
(c) 4 x 10^5 J (d) 300 J

30. The power of a source of energy producing 600 J energy in 30 s is
(a) 1800 W (b) 200 W
(c) 100 W (d) 20 W

31. The unit of electrical energy is
(a) Watt (b) horse power
(c) kWh (d) kW

32. An electric bulb is rated 100W when used on 200 V main supply. The resistance of the bulb is

(a) 200 ohm (b) 300 ohm
(c) 400 ohm (d) 20000 ohm