

Sample Paper – 2014
Class – X
Subject – Science

- Q. 1.** Name a device that helps to maintain the potential difference across a conductor
- Q. 2.** Why ammeter is connected in series whereas voltmeter is connected in parallel through a circuit?
- Q. 3.** Name the material used as filament in heater and electric bulb.
- Q. 4.** The p.d. between the terminals of an electric heater is 60v when it draws a current of 4A from a source. What current will the heater draw if p.d is increased to 120v.
- Q. 5.** What are difference between resistivity and resistance?
- Q. 6.** If resistance of a device kept constant and p.d decreases to half , what will be effect on its current?
- Q. 7.** Why are coils of heating appliances are made of alloys rather than metals?
- Q. 8.** What is variable resistance?
- Q. 9.** Why rheostat is used?
- Q. 10.** R_1 , R_2 & R_3 are three resistors connected in series . derive equivalent resistance for circuit. If value of two resistance are 10 ohm and 20ohm , and a current of 5A flow through circuit having p.d 12v , find value of third resistor if all 3 are connected in parallel
- Q. 11.** What are advantages of connecting electrical device in parallel with the batteries instead of series?
- Q. 12.** State joule' s law. An electric iron consumes energy at rate of 840w when heating is at maximum rate and 360 w when heating is at minimum. The voltage is 220v . what are the current and resistance in each case?
- Q. 13.** Why inert gas such as nitrogen , filled in electric filament?
- Q. 14.** What is fuse? What type of material should be used for it? Give the rating of fuse for a device marked as 1000w –220v.
- Q. 15.** What is commercial unit of electrical energy? Express it in joule.

- Q. 16.** For resistors of equal values are connected through p.d 220v and carry current of 5A . Find values of each resistors.
- Q. 17.** Why we should not connect a bulb and a heater in series ?
- Q. 18.** What is electric power? Give its SI unit.
- Q. 19.** Why aluminium and copper wires generally used for transmission of current?
- Q. 20.** Why high tension wires are used for long distance transmission?
- Q. 21.** Why does a compass needle get deflected when brought near bar magnet?
- Q. 22.** Define magnetic field lines . what is direction of magnetic field lines inside magnet?
- Q. 23.** How the relative strength of magnet is expressed?
- Q. 24.** What will be effect in deflection of needle if
- a. current in solenoid will be changed
 - b. magnitude of current will increase.
- Q. 25.** If an electron enters in magnetic field from west direction , how will it deflect?
- Q. 26.** List the properties of magnetic field lines.
- Q. 27.** Why don't two magnetic field intersect each other?
- Q. 28.** The magnetic field in a given region is uniform . Draw a diagram to represent it.
- Q. 29.** A alfa particle projected towards west is deflected towards north by a magnetic field.What is the direction of magnetic field?
- Q. 30.** What is MRI?
- Q. 31.** Name two organs inside our body where magnetic field produced?
- Q. 32.** What is electric motor? On which principle it work? Name two device in which it is used.
- Q. 33.** State Fleming left hand rule.
- Q. 34.** What is commutator?

- Q. 35. What is armature? How electromagnet is more advantageous than a permanent magnet?
- Q. 36. What is electro magnetic induction?
- Q. 37. Give two ways to induce current in a coil
- Q. 38. What are differences between AC & DC?
- Q. 39. After what times AC changes its direction ? give frequency of current produced in india.
- Q. 40. What is dynamo? On which principle it work?
- Q. 41. What modification should do to get DC from AC generator?
- Q. 42. What precaution should be taken to avoid the overloading of domestic circuits?
- Q. 43. What is short circuits? When it occurs?
- Q. 44. What is function of earth wire? Why it is necessary to earth a metallic appliance?
- Q. 45. Give three methods of producing magnetic field.

Numericals on Current Electricity

- Q. 1. Find the work done by an electron to maintain the potential difference of 80V?
- Q. 2. What is the potential difference between the ends of 16Ω resistance, when a current of 1.5A flows through it?
- Q. 3. The potential difference across the the terminals of an electric iron is 240V and the current is 6 A what is the resistance of electric iron?
- Q. 4. If there are 10^8 electrons flowing across any cross section of a wire in 4 minutes, what is the current in the wire?
- Q. 5. .A copper wire has diameter 0.5mm and resistivity 1.6×10^{-8} ohm m what will be the length of this wire to make the resistance of 10 ohms?
- Q. 6. Find the effective resistance of resistors 0.01 ohms and 10^7 ohms.in series and parallel
- Q. 7. Two resistors of same materials has been connected in series first and then in parallel. Draw a V – I graph to distinguish these connection.

Q. 8. Three resistors 3,4,5 ohms are joined in parallel in a circuit. If a current of $150 \text{ mA} = 150 \times 10^{-3} \text{ A}$ flows through the resistor of 4 ohms, then find the values of the current in mA which will be flowing in other two resistors?

Q. 9. A wire of length 2cm having resistance R is stretched to have an increase of 100% of original length . Find its new resistance with respect to its original resistance.

Q. 10. An electric lamp has resistance of 400 ohms. It is connected to a supply of 250V. If the price of electric energy is Rs.1.20 per unit, calculate the cost of lighting the lamp for 20 hours

(Note; for more chapterwise collected important questions contact me via Email:one.lalansir@gmail.com)

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