

## 9. Household Circuits: Previous year questions 2000-2017

**2017**

- (i) Name the color code of the wire which is connected to the metallic body of an appliance
  - (ii) Draw the diagram of a dual control switch when the appliance is switched on [3]
- (i) Which particles are responsible for current in conductors
  - (ii) To which wire of a cable in a power circuit should the metal case of a geyser be connected
  - (iii) To which wire should the fuse be connected [3]
- (i) Explain the meaning of the statement of 'current rating of a fuse is 5 A'
  - (ii) In the transmission of power, the voltage of power generated at the generating stations is stepped up from 11 kV to 132 kV before it is transmitted. Why? [4]

**2016**

- (i) Which particles are responsible for current in conductors
  - (ii) To which wire of a cable in a power circuit should the metal case of a geyser be connected
  - (iii) To which wire should the fuse be connected [3]
2. State the characteristics required in a material to be used as an effective fuse wire [2]

**2015**

- (i) Name the device used to increase the voltage at a generating station
  - (ii) At what frequency is AC supplied to residential houses
  - (iii) Name the wire in a household electrical circuit to which the switch is connected [3]
4. For a fuse, higher the current rating ..... is the fuse wire [1]

**2014**

- (i) Two sets A and B of three bulbs each, are glowing in two separate rooms. When one of the bulbs in set A is fused, the other two bulbs also ceased to glow. But in set B, when one bulb fuses, the other two bulbs continue to glow. Explain why this phenomenon occurs
  - (ii) Why do we prefer arrangements of set B for house circuiting [3 marks]
2. Two resistors of  $4\Omega$  and  $6\Omega$  are connected in parallel to a cell to draw 0.5 A current from the cell.
  - a. Draw a labelled circuit diagram showing the above arrangement
  - b. Calculate the current in each resistor [4 marks]

**2013**

- (i) Name the device used to protect the electric circuits from overloading and short circuits
  - (ii) On what effect of electricity does above device work [2]
2. (i) An electrical gadget can give an electric shock to its user and certain circumstance. Mention any two of these circumstances
- (ii) What preventive measure provided in a gadget can protect a person from an electric shock [3]

**2012**

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- (i) A cell is sending current in an external circuit. How does the terminal voltage compare with the emf of the cell  
(ii) What is the purpose of using fuse in an electrical circuit  
(iii) What are the characteristic properties of fuse wire [3]

2011

- (i) What is the color code for insulation on the earth wire  
(ii) Write an expression for calculating electrical power in terms of current and resistance [2]
- (i) Name two safety devices which are connected to the live wire of a household electrical circuit  
(ii) Give one important function of each of these two devices [4]

2010

- (i) Which part of an electrical appliance is earthed  
(ii) State a relation between electrical power, resistance and potential difference in an electrical circuit [2]
- (i) In what unit does the domestic electric meter measure the electrical energy consumed. State the value of this unit in SI unit  
(ii) Why should switches always be connected to the live wire?  
(iii) Give one precaution that should be taken while handling switches [4]

2009

- (i) Give two characteristic properties of copper wire which make it unsuitable for use as fuse wire  
(ii) Name the material which is used as a fuse wire [2]
- (i) The diagram (a) and (b) given alongside are of a plug and a socket with arrow marked as 1,2,3 and 4,5,6 respectively on them. Identify and write live (L), neutral (N) and the earth (E) against the correct number.  
(ii) Calculate the electrical energy consumed when a bulb of 40 W is used for 12.5 h every day for 30 days [4]

2008

- The electrical gadget used in a house such as bulbs, fans, heater etc are always connected in parallel not in series. Give two reasons for connecting them in parallel. [2]

2007

- Of the three connecting wires in household circuit
  - Which two of the three wires are at the same potential
  - In which of the three wires should the switch be connected [2]
- What is meant by earthing of an electrical appliance? Why is it essential [2]

2006

- Draw a labelled diagram of a three pin socket? [2]

2004

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1. State the purpose of a fuse in an electric circuit. Name the material used for making a fuse wire. [2]

2002

1. Explain briefly the function of the following in the household wiring
  - a. A three pin plug
  - b. A main switch [2]
2. Four cells, each of emf 1.5 V and internal resistance  $2\ \Omega$  are connected in a parallel. The battery of the cells is connected to an external resistance of  $2.5\ \Omega$ . calculate
  - a. The total resistance of the circuit
  - b. The current flowing in the external circuit
  - c. The drop in potential across the terminals of the cells [5]

2001

1. Draw the diagram of the ring main circuit [2]
2. How does earthing prevent electrical shock [2]

2000

1. (i) Give two characteristic properties of copper wire which make it unsuitable for use as fuse wire  
(ii) Name the material which is used as a fuse wire [2]
1. In a three pin plug, why is the earth pin made longer and thicker than the other two pin[2]
2. (i) Under what circumstances does one get an electric shock from an electric gadget?  
(ii) What is meant by earthing of an electrical appliance? How does earthing offer protection [5]