

**CLASS X- PHYSICS**  
**ELECTRICITY**  
**ASSIGNMENT-3**

**MULTIPLE CHOICE QUESTION - 3.1**

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1. Rate of heat generated by electrical current in a resistive circuit is expressed in :  
(A) IR                      (B) IR<sup>2</sup>                      (C) I<sup>2</sup>R                      (D)  $\sqrt{IR}$
2. Two heater wires of equal length are first connected in series and then in parallel with a battery. Their ratio of heat produced in the two cases in :  
(A) 2 : 1                      (B) 1 : 2                      (C) 4 : 1                      (D) 1 : 4
3. How much electrical energy in kilowatt hour is consumed in operating ten, 50 watt bulbs for 10 hours per day in a month of 30 days ?  
(A) 15                      (B) 150                      (C) 1500                      (D) 15000
4. An electric iron draws a current of 4A when connected to a 220 V mains. Its resistance must be :  
(A) 40  $\Omega$                       (B) 55  $\Omega$                       (C) 100  $\Omega$                       (D) None of these
5. The resistance of a conductor is reduced to half its initial value. In during so the heating effects in the conductor will become :  
(A) half                      (B) one-fourth                      (C) four times                      (D) double
6. Laws of heating are given by :  
(A) Faraday                      (B) Joule                      (C) Ohm                      (D) Maxwell
7. An electric iron is based upon the principle of :  
(A) magnetic effect of current                      (B) heating effect of current  
(C) chemical effect of current                      (D) none of these
8. A fuse wire is always connected to the :  
(A) neutral wire                      (B) earth wire                      (C) live wire                      (D) none of these
9. Heating effect of a current conductor is due to :  
(A) Loss of kinetic energy of moving atoms                      (B) Loss of kinetic energy of moving electrons  
(C) Attraction between electrons and atoms                      (D) Repulsion between electrons and atoms
10. The correct relation between heat produce (H) and electric current following is :  
(A)  $H \propto I$                       (B)  $H \propto \frac{1}{I}$                       (C)  $H \propto I^2$                       (D)  $H \propto \frac{1}{I^2}$

**SUBJECTIVE QUESTION - 3.2**

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1. An electric kettle is rated 500 W, 220 V. It is used to heat 400 g of water for 30 seconds. Assuming the voltage to be 220 V, calculate the rise in the temperature of the water. Specific heat capacity of water = 4200 J/kg<sup>0</sup>C.
2. Three identical are connected in parallel with a battery. The current drawn from the battery is 6 A. If one of the bulbs gets fused, what will be the total current drawn from the battery ?
3. When two resistor are joined in series, the equivalent resistance is 90  $\Omega$  . When the same resistors are joined in parallel, the equivalent resistance is 20  $\Omega$  . Calculate the resistances of the two resistors.
4. Name of few practical applications of heating effect of current.
5. Out of the following bulbs rated 40 W, 220 V, 60 W, 220 V and 100 W, 220 V which one will glow the brightest when connected in series in series to a supply of 220 V ?