**Electrical Circuits and Networks**

1. The ratio of voltage and electric current in a closed circuit  
   (a) remains constant (b) varies (c) increases (d) falls
2. The resistance of a wire varies inversely as  
   (a) area of cross section (b) length (c) resistivity (d) temperature
3. The electrical conductivity of metals is typically of the order of ( in ohm-1 m-1)  
   (a) 10 to the power of 7 (b) 10 to the power of 5 (c) 10 to the power of -4 (d) 10 to the power of -6
4. Four resistors, each of resistance R ohms are available. The minimum resistance of the combination will be   
   (a) 4R (b) R (c) R/4 (d) R/8
5. The elements which are not capable of delivering energy by its own are known as  
   (a) unilateral elements (b) non-linear elements (c) passive elements (d) active elements
6. The magentic susceptibility of paramagnetic material is  
   (a) less than zero (b) less than one but positive (c) greater than one (d) equal to zero
7. The Direction of current in an ac circuit  
   (a) is from positive to negative (b) is always in one direction (c) varies from instant to instant (d)Cannot be determined
8. which of the following statements associated with purely resistive circuits is correct?  
   (a) PF is unity (b) Power consumed is zero (c) Heat produced is zero (d) PF is zero
9. The magnetic field energy in an inductor changes from maximum value to minimum value in in 5m sec when connected to an ac source. The frequency of the source is   
   (a) 20 Hz (b) 50 Hz (c) 200 Hz (d) 500 Hz