INTRODUCTION TO ELECTRICAL ENGINEERING

WorkSheet-1

Unit 1: DC CIRCUITS

Choose the correct Answer

1. The unit of Inductance is
   (a) Ohms (b) Henry
   (c) Farads (d) Watts
2. The elements, which are capable of delivering power to some external device are
   (a) Active elements (b) Passive elements
   (c) Inductor (d) Resistor
3. KVL is based on
   (a) conservation of charge (b) conservation of energy
   (c) conservation of power (d) conservation of work
4. OHM's law can't be applied
   (a) if the temperature of the material varies (b) for non-linear elements
   (c) for vacuum tubes (d) all the above
5. For ideal current source internal resistance is
   (a) zero (b) 1 Ω
   (c) 100 Ω (d) infinite
6. The unit of capacitance is
   (a) Ohms (b) Henry
   (c) Farads (d) Watts
7. The elements, which are capable of receiving the power are known as
   (a) Active elements (b) Passive elements
   (c) Inductor (d) Resistor
8. KCL is based on
   (a) conservation of charge (b) conservation of energy
   (c) conservation of power (d) conservation of work
9. For ideal voltage source internal resistance is
   (a) zero (b) 1 Ω
   (c) 100 Ω (d) infinite
10. Superposition theorem is valid if circuit consisting
    (a) only one source (b) more than one source
    (c) no source (d) none of the above

Fill in the Blanks

11. The flow of electric current in a conductor is due to flow of _____
12. Time constant (τ) in series RL circuit is _____

13. The resistance of a conductor having a length 'l', area of cross-section 'a' and resistivity 'ρ' is given by R = _____.
14. _____ law states that the algebraic sum of branch currents at a node or junction is always zero.
15. The capacitor acts like a _____ circuit at steady state.
16. _____ law states that the algebraic sum of all branch voltages around any closed path in a circuit is always zero at all instants of time.
17. Time constant (τ) in series RC circuit is _____
18. The work done per unit charge to move a charge between two points in an electric field is known as _____
19. The inductor acts like a _____ circuit at steady state
20. When two resistors R1, R2 connected in parallel then, the equivalent resistance is _____

True/False

21. The inductor stores the energy in the form of a magnetic field. True /False
22. The capacitor stores the energy in the form of an electric field. True /False
23. The unit of conductance is ohm's. True /False
24. In open circuit current is zero. True /False
25. In short circuit current is zero. True /False

Match the Following

26. Resistor	a) voltage is independent of load current
27. Inductor	b) Dissipative element
28. Thevenin's equivalent circuit	c) storage element
29. Norton's equivalent circuit	d) voltage source in series with resistor
30. Ideal voltage source	e) current source in parallel with resistor