Higher Secondary (Vocational)
CLASS XI
Semester - 1
Basic Electrical Theory

Time Allowed: 45 Mins **Full Marks: 20**

A. Choose the correct alternative from the following

1. Kilo watt hour is the unit of i) energy; ii) power; iii) electric charge; iv) electric current.
2. A semi- conductor is formed by i) covalent bond; ii) electrovalent bond; iii) coordinate; iv) none of these.
3. Addition of trivalent impurity to a pure semi-conductor material creates many _____ i) valance electron; ii) free electron; iii) holes; iv) bound electron.
4. Two lamps, 100 W, 250 V and 200 W, 250 V are connected in parallel across a 500 V line. Then i) 100 W lamp will fuse; ii) 200 W lamp will fuse; iii) both the bulbs will fuse; iv) nolamp will be fuse.
5. Two electric lamps of 40 W are connected in parallel. The power consumed by the combination is i) 20W; ii) 40 W; iii) 80W; iv) 100 W.
6. In which of the following substances the resistance decreases with increase in temperature? I) carbon; ii) constantan; iii) copper; iv) silver.
7. A passive circuit element in a circuit is one which ___. I) supplies energy; ii) receives energy; iii) both supplies and receives energy; iv) none of these.
8. Energy stored in a 2 H inductor when carrying a current of 4 A is i) 16 W; ii) 8 W; iii) 10 W; iv) 32 W.
9. Two numbers of 2 micro farad capacitors are connected in series , the equivalent capacitance will be i) 2 micro farad; ii) 4 micro farad; iii) 1 micro farad; iv) 3 micro farad.
10. A sinusoidal voltage v= 10 Sin 314 t, the time period of the voltage i) 0.02 sec; 0.2 sec; iii) 0.01 sec; iv) 50 sec.
11. For a sinusoidal current having maximum value of 10 A, the corresponding rms value will be i) 7.07A; ii) 5.77 A; 10 A; iv) 9.09A.
12. The form factor of a sinusoidal quantity is given by i) RMS value/ Average value; ii) Average value/ RMS value; iii) Maximum value/ RMS value; iv) RMS value/ Maximum value.
13. The peak factor of an sinusoidal quantity is given by i) Maximum value/ RMS value; ii)RMS value/ Maximum value; iii) Average value / maximum value; iv) maximum value / Average value;
14. A 10 V d.c source is connected in series with two resistances of 4 Ω and 6 Ω. The current through the circuit will be i) 1 A; ii) 2.5 A; iii) 1.67 A; iv) 4.2A.

15. An inductor L is connected in series with an ac supply having frequency of f Hz. The inductive reactance of the circuit is given by i) $2\pi fL; ii)$ $\frac{1}{2\pi fL}$ iii) πfL; iv) none of these.
16. In a circuit, at a node three branches meet. The node has an incoming current of 5 A and outgoing current of 6 A from two of these branches. The third branch will have an: i) incoming current of 5 A; ii) outgoing current of 5 A; iii) incoming current of - 1 A; iv) outgoing current of -1 A.
17. 17. Kirchhoff's law is applicable for i) passive network; ii) A.C. Network; iii) d.c. network; iv) Both A.C. and D.C network.
18. In an electrical network, for any closed loop, the algebraic summation of voltages is i) zero; ii) always one; ii) one or more than one; iv) one or less than one.
19. A junction or a point where two (or more) network elements intersect is called as i) Node; ii) Branch; iii) Loop; iv) Mesh.
20. What number of equations will be needed to solve the network in nodal analysis if there are a total of 'N 'nodes in the circuit? I) N-1; ii) N+1; iii) N; iv) N-2

ANSWER KEY

1	i	**2**	ii	**3**	iii	**4**	iii	**5**	iii
6	i	**7**	ii	**8**	i	**9**	iii	**10**	i
11	i	**12**	i	**13**	i	**14**	i	**15**	i
16	iv	**17**	iv	**18**	i	**19**	i	**20**	i