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**Question Paper Code: 32307**

B.E. / B.Tech. DEGREE EXAMINATION, DEC 2020

Second Semester

Electrical and Electronics Engineering

01UEE207- ELECTRIC CIRCUITS

(Regulation 2013)

Duration: 1.15 hrs

Maximum: 30 Marks

PART A - (6 x 1 = 6 Marks)

**(Answer any six of the following questions)**

1. If a resistor to carry 1 A of current to handle 100 W of power, estimate the value of resistance. Assume that voltage can be adjusted to any required value.  
(a) 50  $\Omega$                       (b) 100  $\Omega$                       (c) 10  $\Omega$                       (d) 1  $\Omega$
2. A 100  $\Omega$  resistor is connected across the terminals of a 9 V battery. What is the power dissipation in the resistor?  
(a) 9 W                      (b) 0.9 W                      (c) 0.19 W                      (d) 0.81 W
3. Three equal resistances of 9  $\Omega$  are connected in delta. What is the resistance in one of the arms in an equivalent star circuit?  
(a) 3  $\Omega$                       (b) 9  $\Omega$                       (c) 1  $\Omega$                       (d) 27  $\Omega$
4. Maximum power is transferred to load, when the load resistance is  
(a) equal to half of the source resistance                      (b) equal to source resistance  
(c) equal to zero                      (d) equal to twice the source resistance
5. In a series RLC circuit, if C is increased, the resonant frequency  
(a) Increases                      (b) Decreases                      (c) Remains the same                      (d) Becomes zero

6. The admittance and impedance of the following kind of network have the same properties  
 (a) LC                      (b) RL                      (c) RC                      (d) RLC
7. In a series parallel circuit, any two resistances in the same current path must be in  
 (a) series with each other                      (b) parallel with each other  
 (c) series with the voltage source                      (d) parallel with the voltage source
8. An RL circuit has  $R = 2 \Omega$  and  $L = 4 H$ . The time constant is  
 (a)  $4s$                       (b)  $0.5s$                       (c)  $8s$                       (d)  $2s$
9. In a  $Y$ - $Y$  system, a line voltage of  $220 V$  produces a phase voltage of  
 (a)  $381 V$                       (b)  $156 V$                       (c)  $127 V$                       (d)  $22 V$
10. In the measurement of 3 phase power by two Wattmeter method, if the two Wattmeter readings are equal and have same sign, the power factor of the circuit is  
 (a) unity                      (b) zero                      (c) 0.8 leading                      (d) 0.8 lagging

PART – B (3 x 8= 24 Marks)

**(Answer any three of the following questions)**

11. Explain different type of Coordinate system with mathematical expressions. (8)
12. Determine the electric field intensity of an infinitely long, straight, line charge of a uniform density  $\rho_\lambda$  in air. (8)
13. Using Bio-Savart law find H due to finite and infinitely long straight conductor. (8)
14. Compare circuit theory and field theory. (8)
15. State the Poynting vector and establish its usage in Electromagnetic wave analysis. (8)