**Reg. No. :** | | | | | | | | | | |

# Question Paper Code: 52309

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

Second Semester

Electrical and Electronics Engineering

15UEE209 - ELECTRIC CIRCUITS

(Regulation 2015)

Duration: 1.15 hrs Maximum: 30 Marks

PART A - (6 x 1 = 6 Marks)

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

1. Resistance of a conductor increases when CO1- U

   (a) its length increases (b)its area decreases

   (c) both length and area increases (d) specific resistance is kept constant

2. Which of the following condition is satisfy by the Ohm's Law? CO1- R

   (a) Constant voltage (b) Constant temperature

   (c) Constant current (d) None of the above

3. The purpose of a commutator in a dc generator is to_____ CO2- R

   (a) Increase output voltage (b) Reduce sparking at brushes

   (c) Provide smoother output (d) Convert the induced ac into dc

4. Maximum power transfer theorem is applicable for? CO2-U

   (a) Iron box (b) Grinder (c) Sound system (d) Air conditioner

5. Which of the following doping will produce a p-type semiconductor CO3- R

   (a)Germanium with phosphorus (b) Silicon with Germanium

   (c) Germanium with Antimony (d) Silicon with Indium

6. Mutual inductance is ? CO3- R

   (a) $K = M \sqrt{(L_1 L_2)}$ (b) $M = K \sqrt{(L^1 L^2)}$ (c) $M = C \sqrt{(L_1 L_2)}$ (d) $M = K \sqrt{(L_1 L_2)}$

7. Convert octal 377 to binary. CO4- R

   (a) 11101101 (b) ) 01111011 (c) 10110111 (d) 11111111

8. Time constant of RC circuit? CO4- R

(a) 0 % to 63.2 % (b) 0 % to 36.8 % (c) 2T (d) 4T

9. In amplitude modulation, frequency is_____ CO5- R

(a) constant (b) zero (c) variable (d) one

10. Time period is? CO5- R

(a) $2\pi / \omega$ (b) F = 1 / T

(c) Time taken for half cycle (d) Time taken for half cycle

PART – B (3 x 8= 24 Marks)

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

| | | | |
|---|---|---|---|
| 11. | Three resistances of values 2Ω,3Ω and 5Ω are connected in series across 20 V,D.C supply .Calculate (a) equivalent resistance of the circuit (b) the total current of the circuit (c) the voltage drop across each resistor and (d) the power dissipated in each resistor. | CO1- App | (8) |
| 12. | Illustrate Maximum Power Transfer theorem with suitable example. | CO2- U | (8) |
| 13. | The parameter of a RLC parallel circuit excited by a current source are R = 40 Ohm, L = 2 mH , C = 3 Microfarad. Determine the<br>(i) Resonant frequency<br>(ii) Quality factor<br>(iii) Bandwidth<br>(iv) Cut – off frequencies. | CO3- Ana | (8) |
| 14. | Illustrate the transient response analysis of first order RC circuits for DC excitation. | CO4- U | (8) |
| 15 | Describe various methods used for the measurement of three phase power in three phase circuits. | CO5- U | (8) |