



B.E. DEGREE EXAMINATIONS, APRIL / MAY 2019

II Semester

EE 8201 BASIC ELECTRIC CIRCUIT ANALYSIS

(R 2012)

ELECTRICAL AND ELECTRONICS ENGINEERING

Time: 3 Hours

Answer All Questions

Max. Marks: 100

PART – A (10 X 2 = 20)

1. What do you mean by balanced load?
2. Can we apply the laws and theorems applied to DC circuits to AC circuits? How?
3. What do you mean by resonance condition?
4. Explain the voltage division formula and current division formula with an example.
5. What do you mean by time constant?
6. Is there any difference between wattmeter and energy meter? Explain it.
7. What is a two port network?
8. State maximum power transfer theorem
9. What is star connection and delta connection?
10. What is Laplace transform?



PART – B (5 X 16 = 80)

11. A three phase load impedance of $(4+j3)$ ohms in each phase is connected in star and given a supply of 400 V, 50 Hz. Find, the phase voltage, phase current, line current, power and power factor. Connect the same in delta and repeat the calculations of all the above. (16)

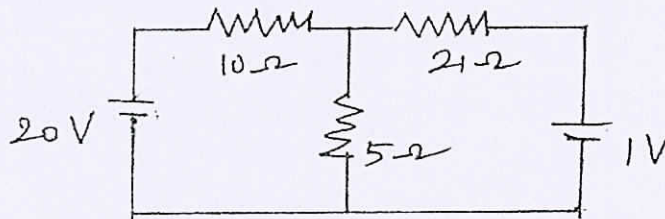
12.a. Explain Mesh analysis to find the branch currents with a suitable network. (16)

(OR)

2.15.19

12. b. Explain Nodal analysis to find the branch currents with a suitable network (16)

13. a. Solve for the current through 5 ohms resistor by principle of Superposition Theorem. (16)



(OR)



13. b. Explain Thevenin's theorem and Norton's theorem with suitable examples. (16)

14. a. A resistance of 10 ohms, 10 mH and 1 microfarad capacitor are in series and connected to a supply voltage of 200 V. Calculate the resonance frequency, voltage across the elements at resonance, Q-factor and bandwidth. (16)

(OR)

14.b. A coil having an inductance of 100 mH is magnetically coupled to another coil having an inductance of 900 mH. The coefficient of coupling between the coils is 0.45. Calculate the equivalent inductance if the two coils are connected in (i) series aiding (ii) series opposition (iii) Parallel aiding (iii) Parallel opposing (16)

15.a. A resistance of 2 ohms and inductance of 5 H in series is having a supply voltage of 20 V. Find the expression for transient current after the switch is closed at $t=0$ assuming Zero initial conditions (16)

(OR)

15.b. Calculate the Z parameters for the following two port network. (16)

