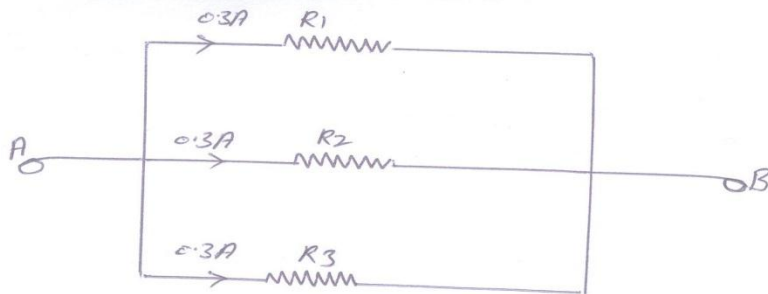# QUESTION BANK ETE (17331) CM/IF

Chapter1: DC Circuits

Q1. State & explain Ohms law. Also explain concept of series & parallel circuit with the help of diagram.   3M

Q2. Find the value of resistor in fig. if the equivalent resistance of the three resistors joined in the parallel is 12 ohm
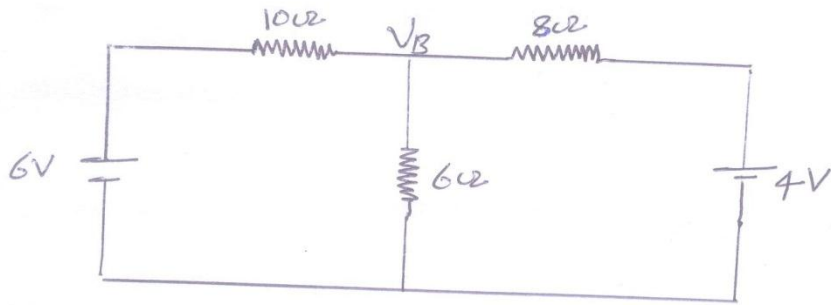

3M

Q3. State KCL & KVL. Explain each with diagram. 4M

Q4. With the help of a neat circuit diagram , explain how nodal analysis method is used to find node voltage and branch current. 4M

Q5. Calculate the node voltage Vb using nodal analysis.
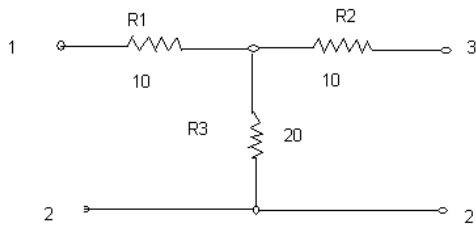
10Ω
VB
8Ω
6V
6Ω
4V

4M

Q6. Give mathematical expressions used to convert

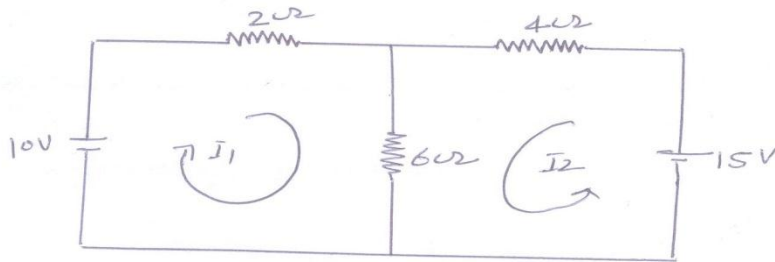(a) Star network into delta network

(b) Delta network into Star network   3M

Q7. Obtain the equivalent Delta network for the star network.

R1   R2
1   10   10   3
R3   20
2   2

4M

Q8. Find loop current.

4M

Chapter 2:- ACFundamentals

Q9. Define

   (a) Magnetic Flux
   (b) Reluctance   3M

Q10. State Faradays Law of electromagnetic induction.   3M

Q11. State Len's law.   3M

Q12. Distinguish between statically emf and dynamically induced emf.   4M

Q13. Explain clearly in case of an alternating current the following terms:-

   (a) Instantaneous value
   (b) Maximum value
   (c) RMS value
   (d) Peak factor   4M

Q14. Draw a cycle of a sinusoidal ac quantity. Mark maximum value, instantaneous value, Time period on it.   4M

Q15. An alternating current is given by the equation $I = 10 \sin 314t$. Find

   (a) Maximum value
   (b) Value of current after $t = 0.01$ sec
   (c) Time period
   (d) Form factor   4M

Q16. Draw the waveforms & vector diagram of relation between the sinusoidal applied voltage & current for purely capacitive circuit.   4M

. Q17. Define the following

   1. Inductive reactance
   2. Capacitive reactance and give its unit.   3M

Q18. A resistance of 10Ω & a capacitor of 100μf are connected in series across a 230v, 50hz ac supply. Find capacitive reactance, impedance, current & power factor.   4M

Q19. What is inductive reactance of coil ? Give its unit. State the factors on which it depends?

Q20. Explain series RL circuit with the help of phasor diagram & equations.   4M

Q21. An alternating voltage is represented by v = 141.42 sin 377t. Determine

   (a) Amplitude
   (b) RMS value
   (c) Average value
   (d) Form factor   4M

Q22. A coil of resistance 10 Ω and inductance 0.1H is connected in series with 200V, 50Hz supply. Calculate:

   1. Inductive reactance
   2. Capacitive reactance
   3. Impedance
   4. Current.   4M

Q23. Draw the waveforms & vector diagram of relation between the sinusoidal applied voltage & current for purely inductive circuit.   4M

Q24. Draw the waveforms & vector diagram of relation between the sinusoidal applied voltage & current for purely inductive circuit.   4M

QUESTION BANK ETE(17331) CM3G/IF3G

AC series circuit

1. Draw circuit diagram for measurement of single –phase power using dynamometer type wattmeter. 3M

2. Define the following: 3M

   i.   Active power
  ii.   Reactive power.

3. A three-phase 400 V, 50Hz, a.c. supply is feeding a three phase delta connected load with each phase having a resistance of 25 ohms, an inductance of 0.15H and capacitance of 120 microfarads in series. Determine the line current and total three phase power absorbed.   4M

4. A circuit draws a current of 10Aat a voltage of 200 V and its power factor is 0.8 lagging. Calculate:

   i.   Active power
  ii.   Reactive power
 iii.   Apparent power.   4M

5. Define power factor of an A.C circuit. State its value for purely resistive circuit.   4M

Three Phase Circuits

6. Give the following for delta connected balanced system: 4M

   i.   Relation between phase and line current
  ii.   Relation between phase and line voltage
 iii.   Equation for three phase power.

7. State relation between phase and line current and phase and line voltage of the following system:

   i.   Star connected balanced system
  ii.   Delta connected balanced system.   3M

8. Draw three phase a.c. wave forms. Explain phase sequence for the three phase a.c.   4M

9. State advantages of three phase circuits over single phase circuits.   4M

10. For a balanced three phase, three wire systems with star connected load for which line voltage is 230V and per phase resistance and reactance is 6 ohms and 8 ohms respectively. Calculate line current and power absorbed by each phase.   4M

11. Compare three phase star connection with three phase delta connection.   3M

Electrical Machines

12. Define efficiency and voltage regulation of single phase transformer.   3M

13. Give principle of operation and working of capacitor start single phase induction motor. 4M

14. Give one application of the following single phase motors: 3M

   i.   Resistance split phase motor
  ii.   Capacitance start motor.

15. Give construction and working principle of single phase transformer.   4M

16. Give principle of operation and working of universal motor.   4M

17. Compare Auto Transformer with two winding transformer.   4M

18. Explain principle of operation of single phase induction motor.   4M

19. Compare core type and shell type transformer on any four points.   3M

Electrical safety

20. Compare fuse and MCB on the basis of: 4M

   i.   Cost.
  ii.   Operation
 iii.   Safety
  iv.   Service.

21. Draw a neat labeled diagram of pipe earthing as per IS.   3M

22. State the factors on which severity of electric shock depends.   4M

23. Give classifications of fuses.   3M

24. State two factors affecting severity of electric shock.   3M

25. State need of earthing.   3M