R-14

Code: 4G236

II B.Tech. I Semester Supplementary Examinations May 2018

Electrical Engineering and Electronics Engineering

(Common to ME, CSE & IT)

Max. Marks: 70   Time: 3 Hours

Answer *all five* units by choosing one question from each unit (5 x 14 = 70 Marks)

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UNIT–I

1. a) State and explain the Kichhoff's laws   6M

   b) Three resistances 2 , 5 and 10 are connected in series across a supply voltage of 25 Volts. Calculate

       (i) Total current supplied (ii) Voltage across each resistor   8M

OR

2. a) Derive expression for equivalent capacitance when three capacitors of capacitances of C_1, C_2 and C_3 are connected in series   7M

   b) Three inductances 10 , 20 and 30 are connected in a delta connection. Find the equivalent star connection   7M

UNIT–II

3. a) Derive the EMF equation of DC generator   6M

   b) A 4 pole generator having 51 slots with each slot containing 20 conductors. The machine is driven at 1500 rpm and assuming the flux per pole to be 7.0mWb. What will be the voltage generated in machine when the armature winding is (i) Lap connected (ii) Wave connected.   8M

OR

4. a) What is meant by starter and explain the principle of operation of three point starter   7M

   b) What are the different types of speed control methods and explain any one of the speed control methods in detail   7M

UNIT–III

5. a) Explain the principle of operation of single phase transformer with a neat diagram   6M

   b) A 250KVA single phase transformer has iron losses of 1.8KW and full load copper losses is 200 watts. Calculate

       (i) Efficiency at full load at 0.8 p.f lagging

       (ii) Efficiency at half load at 0.8 p.f leading

       (iii) Maximum efficiency at 0.8 p.f lagging   8M

OR

6. a) Explain the principle of operation of alternator with a neat sketch   7M

   b) Draw and explain the slip-torque characteristics of three phase induction motor   7M

UNIT–IV

7. a) With a neat circuit diagram explain the principle of operation of full wave diode bridge rectifier along with its input and output waveforms   8M

   b) What is meant by rectifier and list it's applications   6M

OR

8. a) Explain the following
      (i) PNP transistor   (ii) NPN transistor   7M

   b) Draw the frequency response of CE amplifier and explain   7M

UNIT–V

9. Explain about different types of electric heating and mention its industrial applications   14M

OR

10. a) Draw and explain the principle of CRT   7M

    b) Explain the following
       (i) Voltage measurement of CRO
       (ii) Frequency measurement of CRO   7M

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