Code: R7 210102

R7

B.Tech II Year I Semester (R07) Supplementary Examinations, May 2012

ELECTRICAL AND ELECTRONICS ENGINEERING

(Common to CE and ME)

Time: 3 hours   Max Marks: 80

Answer any FIVE questions

All questions carry equal marks

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1   (a)   Define and explain Kirchhoff's laws
    (b)   Two resistances of 1.5 Ω and 3.5 Ω are connected in parallel and their combination is connected is series with a resistance of 1.95Ω. Find the equivalent resistance of the circuit. What current will it draw if connected to a 30V supply?

2   (a)   Explain the principle of operation of DC generator.
    (b)   A 220V, DC shunt motor taker a total current of 100 A and runs at 750 rpm. The resistance of the armature winding and shunt field winding are 0.1Ω and 40 Ω respectively. Find the torque developed by armature.

3   (a)   Derive the event equation of single phase transformer.
    (b)   A single phase transformer working at unity power factor has an efficiency of 90% at half load and full load of 500 W. Determine the efficiency at 75% of full load.

4   (a)   Explain the principle of operation of 3 phase induction motor.
    (b)   Explain the slip- torque characteristics of 3-phase induction motors.

5   Explain the principle and operation of permanent magnet moving coil instrument with neat diagram.

6   (a)   Explain V-I characteristics of P-N junction diode.
    (b)   Explain the operation of half wave and full wave rectifiers with neat circuit diagrams.

7   Explain the characteristics of SCR in detail.

8   (a)   Derive the expression for the electrostatic deflection of CRO.
    (b)   Explain how voltage and frequency can be measured by using CRO.

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