

Code: 9A02301

B.Tech II Year I Semester (R09) Supplementary Examinations June 2017

ELECTRICAL ENGINEERING & ELECTRONICS ENGINEERING

(Common to AE & ME)

Time: 3 hours

Max. Marks: 70

(Minimum of two questions from each part should be chosen for answering FIVE questions)

All questions carry equal marks

PART – A

- 1 (a) State and explain Kirchoff's laws.
(b) Three resistors 3Ω , 4Ω , 5Ω are connected in star. Find the equivalent resistances when they are connected in delta. Derive the formulae used.
- 2 (a) Explain the principle of operation of DC generator.
(b) Derive the torque equation of a DC motor.
- 3 (a) Derive the e.m.f equation of a single phase transformer.
(b) Explain the losses that occur in transformers.
- 4 (a) Explain the principle and operation of three phase alternators.
(b) Explain the slip-torque characteristics of three phase induction motors.

PART – B

- 5 (a) List the applications of PN-junction diode.
(b) Draw the circuit diagram of a full-wave rectifier using centre-tap transformer. Explain its working principle. Determine the DC output voltage.
- 6 (a) Draw and explain the V-I characteristics of SCR.
(b) List the applications of SCR.
(c) Explain the Barkhausen criteria for oscillation.
- 7 Discuss in brief about induction heating and its industrial applications.
- 8 (a) How will you make the following measurements with a CRO:
(i) Current.
(ii) Frequency.
(b) Write a brief note on electromagnetic deflection of an electron beam in a CRT.
