

**SS****Code: 9A02301****B.Tech II Year I Semester (R13) Supplementary Examinations June 2017****ELECTRICAL ENGINEERING & ELECTRONICS ENGINEERING****(Computer Science & Engineering)**

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

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**PART – A**

- 1 (a) Explain the types of elements in detail.  
(b) Three resistors  $3\ \Omega$ ,  $4\ \Omega$ ,  $5\ \Omega$  are connected in parallel across a  $10\ \text{V}$  source. Find the current delivered by the source and current in each resistor. Derive the formulae used.
- 2 (a) Derive the e.m.f equation of a DC generator.  
(b) Explain in brief the principle and operation of 3-point starter used in the DC motors with neat diagram.
- 3 (a) Explain the principle and operation of single phase transformer.  
(b) Define and explain efficiency and regulation. Derive the expressions.
- 4 (a) Explain the principle and operation of three phase induction motor.  
(b) Explain the finding of regulation of an alternator by synchronous method.

**PART – B**

- 5 (a) Explain the operation of PN-junction diode.  
(b) Draw the circuit diagram of a full-wave bridge rectifier. Explain its working principle.
- 6 (a) Describe the operation mechanism of an NPN transistor with diagrams.  
(b) Draw the circuit diagram of a negative feedback amplifier and obtain an expression for its closed loop gain.
- 7 Discuss in brief about dielectric heating and its industrial applications.
- 8 (a) How will you make the following measurements with a CRO:  
(i) Voltage.  
(ii) Frequency.  
(b) Write a brief note on electrostatic deflection of an electron beam in a CRT.

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