

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

BASIC ELECTRICAL & ELECTRONICS ENGINEERING

(Biotechnology)

Time: 3 hours

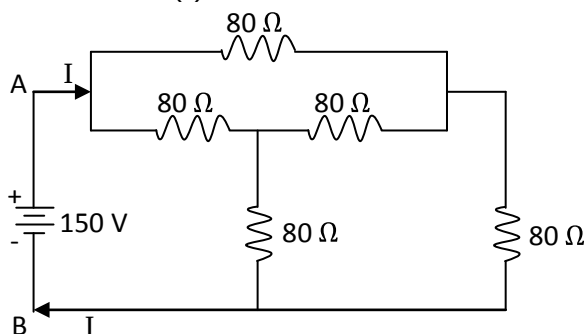
Max. Marks: 70

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

All questions carry equal marks

PART – A

- 1 (a) Explain the Kirchoff's law's, with suitable examples.
- (b) In the figure given below, 150 volts are applied to the terminal AB. Determine: (i) The resistance between the terminal A and B. (ii) The current I.



- 2 (a) Explain with the help of diagrams, what you understand by in phase, lagging and leading as applied to sinusoidal quantities.
- (b) A coil takes a current of 6 A when connected to a 24 V d.c. supply. To obtain the same current with a 50 Hz a.c. supply, the voltage required was 30 V. Calculate: (i) The inductance of the coil and (ii) The power factor of the coil.
- 3 (a) Derive the equation of impedance and power factor of RLC series circuit.
- (b) For a balanced three phase, three wire system with star connected load for which line voltage is 230 V and per phase resistance and reactance is 6 ohms and 8 ohms respectively. Calculate line current and power absorbed by each phase.
- 4 (a) Explain the principle of operation of DC machine with neat sketch.
- (b) Discuss the constructional details of single-phase transformer.

PART – B

- 5 (a) Explain the V-I characteristics of a PN junction diode.
- (b) A centre-tapped single-phase full-wave rectifier has two diodes and the forward resistance of each diode is 25 ohms. The transformer secondary voltage from centre to each half of the secondary winding is $30\sqrt{2} \sin \omega t$ and the load resistance is 2000 ohms. Determine: (i) The average value of load current. (ii) The peak inverse voltage of each diode.
- 6 (a) Explain how a transistor is used as an amplifier.
- (b) Define feedback amplifier. What are the different types of feedback amplifiers?
- (c) List the advantages of feedback amplifiers.
- 7 Briefly explain about induction heating and its industrial applications.
- 8 (a) Explain about the electromagnetic deflection of an electron beam in a CRT.
- (b) Describe the applications of CRO.
