

B.Tech II Year I Semester (R13) Regular Examinations December 2014
BASIC ELECTRICAL & ELECTRONICS ENGINEERING
 (Computer Science Engineering)

Time: 3 hours

Max. Marks: 70

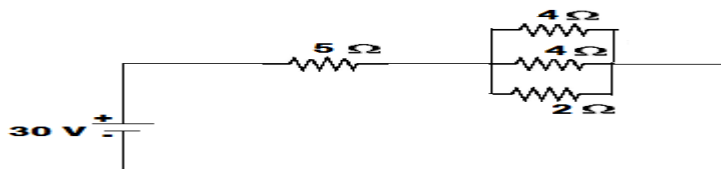
Answer all questions

PART – A**UNIT – I**

- 1 (a) With suitable examples, state and explain the Kirchoff's laws.
 (b) A supply of 200 V, 50 Hz is connected to a $20\ \Omega$ resistor in series with a choke coil. The reading of the voltmeter across the resistor is 100 V and across the coil is 144 V. Calculate the power factor of the circuit, the power consumed in the resistance and the power consumed in the coil.

OR

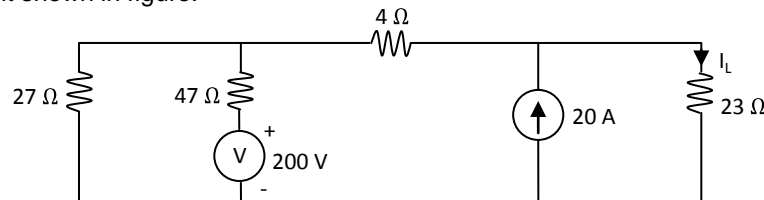
- 2 (a) Determine the total current in the circuit shown in figure given below.



- (b) Define and explain the terms phase difference, R.M.S. value and Average value.

UNIT – II

- 3 State Superposition theorem? Using Superposition theorem, find the current I and the power consumer by $23\ \Omega$ resistor in the circuit shown in figure.



OR

- 4 Explain how the impedance and admittance parameters are obtained from a two port network.

UNIT – III

- 5 (a) Enumerate all the parts of a D.C. machine and indicate their functions.
 (b) A 230 V D.C. shunt motor takes 32 A at full load. Find the back e.m.f. on full load if the resistances of motor armature and shunt field windings are 0.2 ohm and 115 ohms respectively.

OR

- 6 Draw the characteristics curves of dc shunt and series motors. Use these curves to explain the applications for which these motors are used.

PART – B**UNIT – I**

- 7 (a) Derive the expression for efficiency of a FWR.
 (b) Explain the operation of reverse biased diode.

OR

- 8 (a) Explain the formation of P type semiconductor.
 (b) Determine the values of forward current in the case of a P-N junction diode, with $I_0 = 10\ \mu\text{A}$, $V_f = 0.8\ \text{V}$ at $T = 300\ \text{K}$. Assume silicon diode.

UNIT – II

- 9 (a) Define and explain R_d , g_m and μ of JFET.
 (b) Draw and explain the drain characteristics of N-channel enhancement type MOSFET.

OR

- 10 (a) Give the comparison between BJT and FET.
 (b) Draw the circuit diagram of a self bias circuit and explain it.

UNIT – III

- 11 Sketch the circuit of a tuned collector oscillator and explain in detail.

OR

- 12 (a) Explain the differential amplifier.
 (b) Explain the applications of OP-AMPS.
