

Code No: 53015

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD

B.Tech II Year I Semester Examinations, February/March - 2016

ELECTRICAL AND ELECTRONICS ENGINEERING

(Common to CE, ME AME, PTE)

Time: 3 hours

Max. Marks: 75

Answer any five questions
All questions carry equal marks

- 1.a) Calculate the power supplied or absorbed by each element as shown in figure 1.

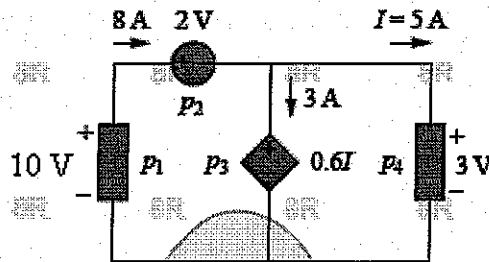


Figure: 1

- b) Determine current in A-B branch by Kirchhoff's laws shown in figure 2. [7+8]

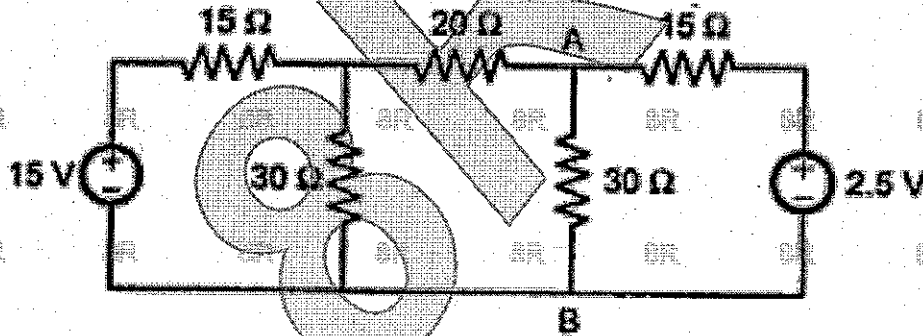


Figure: 2

- 2.a) Explain the principle of operation of a DC generator.
b) Bring out the comparison of DC Generator and Motor. And also explain the significance of back EMF. [7+8]
- 3.a) Derive the EMF equation of a 1-phase transformer.
b) Explain in detail about the condition for maximum efficiency and losses in the practical transformer. [7+8]
- 4.a) With neat diagram explain the production of RMF in a 3-phase induction motor. And explain why does the rotor rotate?
b) Prove the condition for maximum torque in a 3-phase I.M. [10+5]
- 5.a) Explain the principle of operation of repulsion type moving iron instrument and also derive the deflecting torque equation under balanced condition.
b) What are the essential of indicating instruments? [9+6]

- 6.a) Explain the operation of full wave rectifier and derive the equation for its efficiency.
- b) Explain the operation of half wave rectifier and derive the equation for its efficiency. [8+7]
- 7.a) Explain the working principle of NPN and PNP transistor.
- b) Draw the practical circuit of a transistor amplifier and explain in detail. [7+8]
- 8.a) Describe how the frequency and phase angle measurement can be made with the use of a CRO.
- b) A lissajous pattern on an oscilloscope is stationary and has 5 horizontal tangents and 2 vertical tangents. The frequency of horizontal input is 1000 Hz. Determine the frequency of vertical input. [9+6]

