

Code No: 53015

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY, HYDERABAD

B.Tech II Year I Semester Examinations, May/June-2015

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 voltage across branch AB in the circuit shown figure 1 using any of network reduction technique.

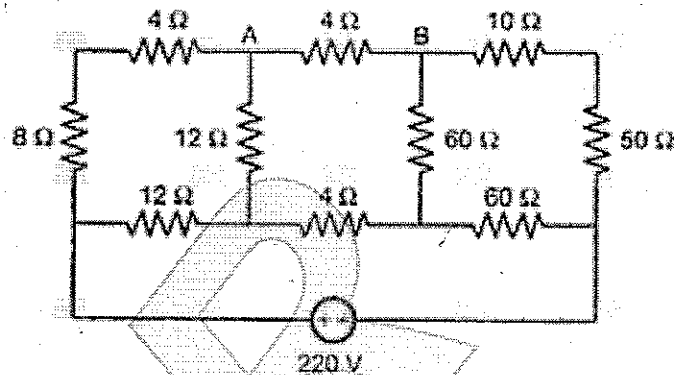


Figure: 1

- b) Find the equivalent resistance between the points A and B shown in figure 2.

[7+8]

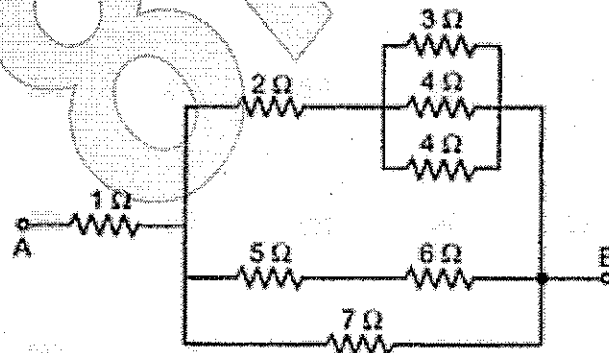


Figure: 2

- 2.a) With neat sketch explain the constructional details of DC generator.
 b) With neat circuit diagram explain the principle of operation of 3-point starter for DC shunt motor. [7+8]
- 3.a) An ideal 25 KVA transformer has 500 turns on the primary winding and 40 turns on the secondary winding. The primary is connected to 3000 V, 50 Hz supply. Calculate:
 i) Primary and secondary currents on full load
 ii) Secondary emf
 iii) The maximum core flux.
 b) Explain the No load test on a single phase transformer. [6+9]



- 4.a) Explain the torque slip characteristics of 3-phase induction motor.
b) Derive the EMF equation of an alternator. [7+8]
- 5.a) Explain the principle of operation of permanent magnet moving coil instrument and also derive the deflecting torque equation under steady deflection condition.
b) What are the advantages and disadvantages of moving coil instruments? [9+6]
- 6.a) Explain the operation of half wave rectifier and derive the equation for its efficiency.
b) Explain the principle of operation of PN junction diode and its characteristics. [9+6]
- 7.a) Draw and explain the V-I characteristics of SCR.
b) How the amplifiers are classified and explain the power amplifiers? [7+8]
- 8.a) The deflection sensitivity of an oscilloscope is 35V/cm. If the distance from the deflection plates to the CRT screen is 16 cm, the length of the deflection plates is 2.5 cm and the distance between the deflection plates is 1.2 cm. What is the acceleration anode voltage?
b) What are the different types of amplifiers used in CRO? Describe the basis on which they are classified. [7+8]

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