Code No: 53025 **R09**

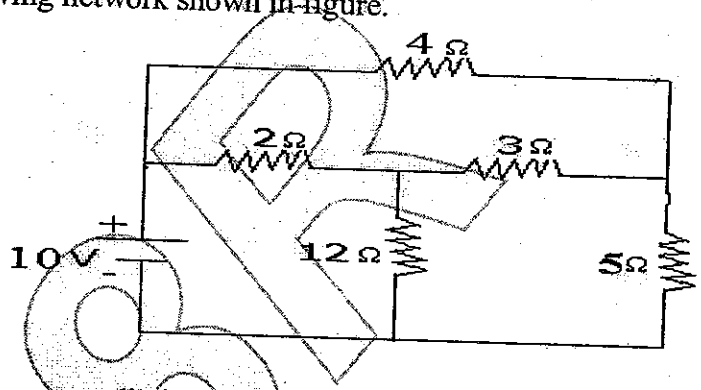
JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY, HYDERABAD
B.Tech II Year I Semester Examinations, May/June - 2015
BASIC ELECTRICAL ENGINEERING
(Common to CSE, IT)

Time: 3 hours **Max. Marks: 75**

Answer any five questions
All questions carry equal marks
- - -

1.a) What are Passive and Active elements.
b) Two coils connected in parallel across 100 V DC supply, takes 10 A current from the Supply. Power dissipated in one coil is 600 W. Find:
i) What is the resistance of that coil?
ii) What is the current flowing through that coil? [7+8]

2.a) State and explain Maximum power transfer theorem.
b) Find the current supplied by 10 V battery by using Star–Delta transformation for the following network shown in figure. [7+8]



3.a) Show that power dissipated by a pure capacitor exited by a sinusoidal voltage source $V = V_m \sin(\omega t)$ is Zero.
b) An alternating current is expressed as $I = 14.14 \sin 314t$.
Determine:
i) Maximum current ii) RMS current
iii) Frequency iv) Instantaneous current when t = 0.03ms. [7+8]

4.a) Explain the construction of a single phase transformer.
b) Discuss in detail the difference between a core type and a shell type trans-former. [8+7]

5.a) Derive EMF equation of a D.C generator.
b) A 250 V dc shunt machine has line current of 80 A. It has armature and field resistances of 0.1 ohms and 125 ohms respectively. Calculate power developed in armature when running as Generator [7+8]

6.a) Give the classification of d.c. motors.
b) A 120 V DC shunt motor has an armature resistance of 0.2 ohms and a field resistance of 60 ohms. The full-load line current is 60A and full load speed is 1800 rpm. If the brush contact drop is 3V, find the speed of the motor at half load. [9+6]