

**End Semester Examinations - 2015-16 Even Semester - May 2016**

**14EE1001 Basic Electrical Engineering**

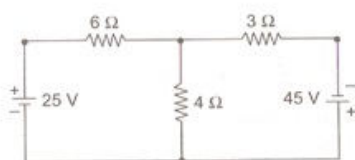
**Set B**

**Time : 3 hrs**  
**Total Marks: 100**

1. (a) A resistor of 3.6 ohms is connected in series with another resistance of 4.56 ohms. What resistance must be placed across 3.6 ohms so that the total resistance of the circuits shall be 6 ohms? (10)
- (b) A delta network consists of equal resistances in all the three arms. Find the resistances of the arms of its equivalent star network and derive the expression. (10)

**OR**

2. (a) Obtain the equation for the voltage across any resistance in a parallel circuit having 'n' number of different resistances. Highlight the important concepts of parallel circuits and discuss its advantages. (10)
- (b) Using Kirchoff's laws, find the current in various resistors in the circuit shown below: (10)



3. a) Compare the performance of a inductance in a series circuit and a parralell circuit with relevant diagrams. (10)
- b) Explain self inductance with necessary equations. Also derive the relationship between self-induced emf and self inductance. (10)

**OR**

4. a) Discuss about mutual inductance in detail. (10)
- b) Derive the coupling co-efficient between two magnetically coupled circuits.(10)
5. a) With a neat diagram explain the various components of a hydroelectric power plant. Also write the advantages of hydro power plant. (14) .
- b) Compare over head and underground transmission systems .(6)

**OR**

6. How is electricity generated in Thermal Power Station, explain with neat diagram.(20)

7. a) Explain the working and operation of a D.C. Motor. (10)
- b) Derive the e.m.f. equation of a D.C. Generator. (10)

**OR**

8. a) Discuss about the principle,construction and working of a transformer with neat diagrams. (15)
- b) List out the applications of DC series generators and Induction Motor. (5)
9. a) Describe the operation of staircase wiring with neat diagram, also draw a table mentioning the position of the switches to make the lamp at ON condition. (10)
- b) Draw the diagram of PMMI Instrument and explain its operation .(10)

