

Reg No.: \_\_\_\_\_

Name: \_\_\_\_\_

**APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY**  
**THIRD SEMESTER B.TECH DEGREE EXAMINATION(S), MAY 2019**

**Course Code: EE209**

**Course Name: ELECTRICAL TECHNOLOGY**

Max. Marks: 100

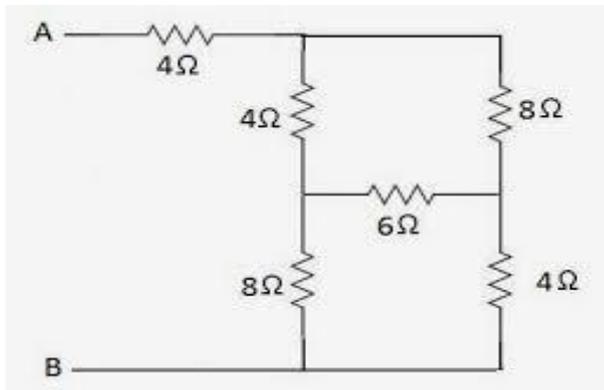
Duration: 3 Hours

**PART A**

*Answer all questions, each carries 5 marks.*

Marks

- 1 Find the equivalent resistance across the terminal A and B using star delta conversion method. (5)

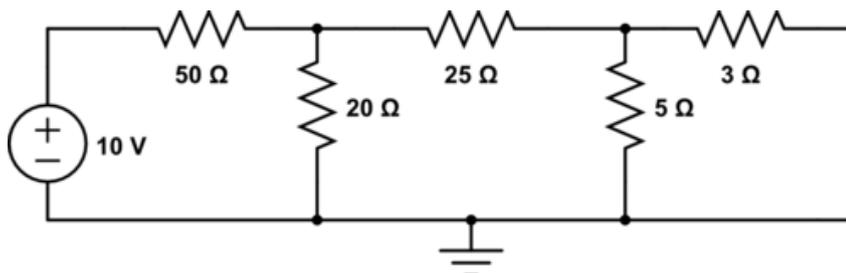


- 2 State Thevenin's theorem. Mention the steps for solving Thevenin's theorem. (5)
- 3 Derive relation between phase voltage and line voltage in a star connected system. (5)
- 4 Explain the different power stages of DC motor. (5)
- 5 Narrate the properties of ideal transformer. Sketch its phasor diagram (5)
- 6 Explain the construction of transformer. (5)
- 7 Give some applications of synchronous motor. (5)
- 8 Explain the working principle of single phase induction motor. (5)

**PART B**

*Answer any three full questions, each carries 10 marks.*

- 9 Find node voltages of the given network using nodal analysis (10)



- 10 State maximum power transfer theorem. Obtain the condition for maximum power transfer. (10)
- 11 a) Compare parallel and series resonance. (5)  
b) Draw and explain OCC of a separately excited DC generator. (5)
- 12 a) Explain the necessity of starter. (3)  
b) With neat sketch, explain 3 point starter. (7)
- 13 How can 3 phase power measurement be done by two wattmeter method? (10)

**PART C**

*Answer any twofull questions, each carries 15 marks.*

- 14 a) Derive the equation for torque of 3 phase induction motor. (5)  
b) An ideal 25kVA transformer has 500 turns on the primary winding and 40 turns on the secondary winding. The primary is connected to 3000V, 50Hz supply. Calculate i) primary and secondary currents on full load ii) secondary EMF iii) maximum core flux. (10)
- 15 Explain various starting methods of a three phase induction motor. (15)
- 16 a) Explain the working principle of servo motor and mention some of its applications. (7)  
b) Explain stepper motor and its some applications (8)
- 17 a) Why single phase induction motor is not self-starting? Explain different types of single phase induction motor. (15)

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