C   C192025   Pages:2

Reg No.:_____   Name:_____

APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY
THIRD SEMESTER B.TECH DEGREE EXAMINATION(R&S), DECEMBER 2019
Course Code: EE209
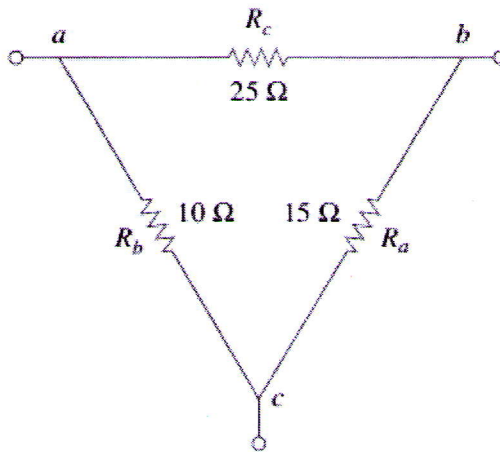### Course Name: ELECTRICAL TECHNOLOGY

Max. Marks: 100   Duration: 3 Hours

PART A
Answer all questions, each carries5 marks.

Marks

1   Convert the given delta connected network into star connected network   (5)


2   State Thevenin's theorem. Explain the steps for solving Thevenin's theorem.   (5)

3   What is series resonance? Derive expression for resonant frequency of the series RLC circuit.   (5)

4   A 4 pole dc generator, having wave wound armature winding has 51 slots, each slot containing 20 conductors. What will be the voltage generated in the machine when driven at 1500 rpm assuming flux per pole to be 0.007 Wb.   (5)

5   Explain different types of DC motor according to the excitation method.   (5)

6   Derive an expression for induced emf in a transformer in terms of frequency, the maximum value of flux and the number of turns on the windings.   (5)

7   List the different applications of Single phase induction motors.   (5)

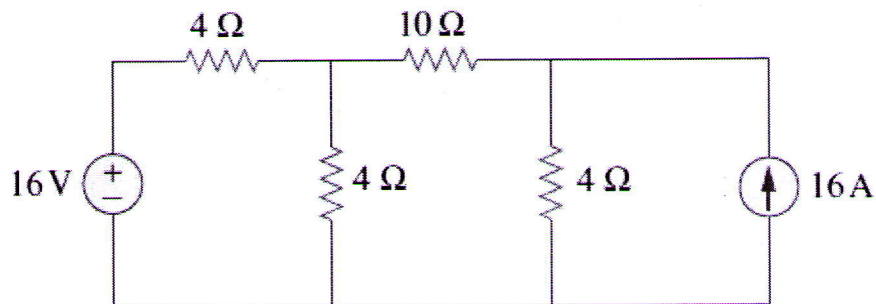8   Why starters are necessary for starting the induction motors?   (5)

PART B
Answer any three full questions, each carries10 marks.

9   Find the power loss in 10Ω resistor in the network shown below using mesh analysis.   (10)
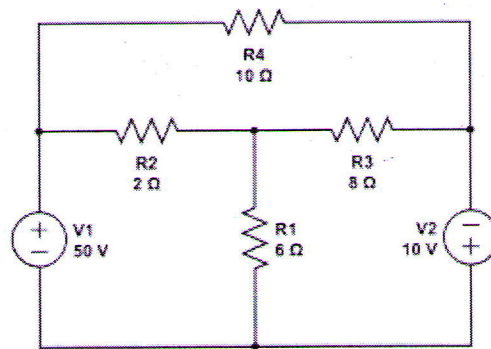
10   Find the current through 10 Ω resistance in the given network by   (10)
      using superposition theorem.

11   Three coils each having an impedance of $(8 + 6j)\Omega$ are connected in (1) star and   (10)
      (2) delta across 400V, 3 phase line. Calculate the line current and total power for
      each case.

12   Explain constructional details of a DC machine with necessary sketches.   (10)

13   Explain the working of 3 point starter with neat diagram.   (10)

PART C
Answer any two full questions, each carries 15 marks.

14   a)   Define voltage regulation of a transformer   (5)

      b)   Explain the construction, operation and working principle of transformer.   (10)

15   a)   Explain the concept of rotating magnetic field   (10)

      b)   Draw and explain the power flow diagram of a 3 phase induction motor   (5)

16   Explain the working principle of a universal motor with neat sketches and   (15)
      mention its applications

17   Explain different types of single phase induction motors.   (15)