PRESIDENCY UNIVERSITY, BENGALURU
SCHOOL OF ENGINEERING

Max Marks: 30 Max Time: 55Mins Weightage: 15 % **Set A**

TEST 3

II Semester 2016-2017 Course: **EEE A 104 Electrical Sciences** 22 April 2017

Instructions:

i. Write legibly
ii. Scientific calculators are permitted

Part A (2 Q x 6 M= 12 Marks)

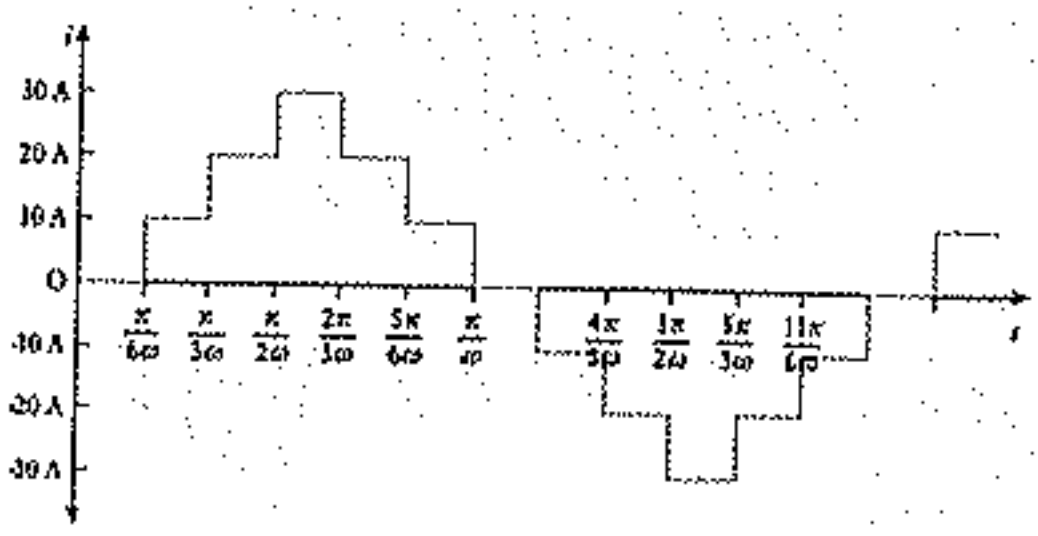
1. With necessary circuit and waveform, show that the power consumed by pure capacitive circuit is zero
2. A 8 Ω non-reactive resistor is connected in series with a coil of inductance 0.05 H and negligible resistance. The combined circuit is connected to a 120 V, 60 Hz supply. Calculate:
   (a) The impedance of the circuit;
   (b) The current in the circuit;
   (c) The power factor of the circuit;
   (d) The active power absorbed by the circuit.

Part B (1 Q x 8 M= 08 Marks)

3. A coil having a resistance of 20 Ω and an inductance of 0.15 H is connected in series with a 100 μF capacitor across a 230 V, 50 Hz supply.
   a) Draw a phasor diagram showing the supply voltage and current and the voltage across each component.
   b) Find the phase angle between the voltage and current.

Part C (1 Q x 10 M= 10 Marks)

4. Calculate the RMS value and average value of the current waveform shown below.



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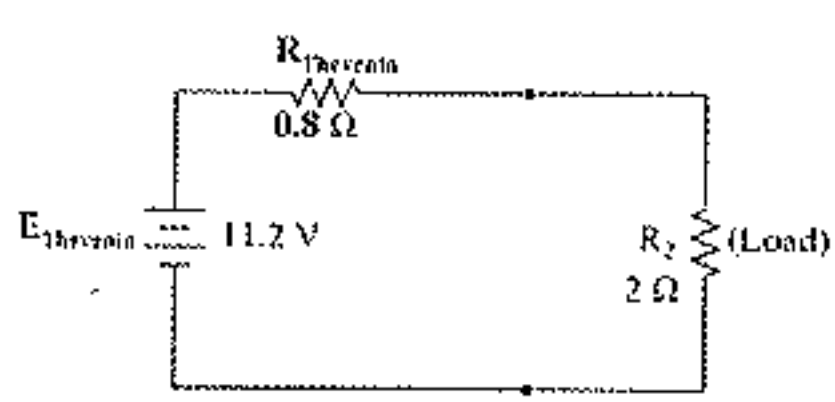
Max Marks: 30 | Max Time: 55Mins | Weightage: 15 % | **Set A**

TEST 2

II Semester 2016-2017 | Course: **EEE A104 Electrical Sciences** | 25 March 2017

Part A (2 Q x 6 M= 12 Marks)

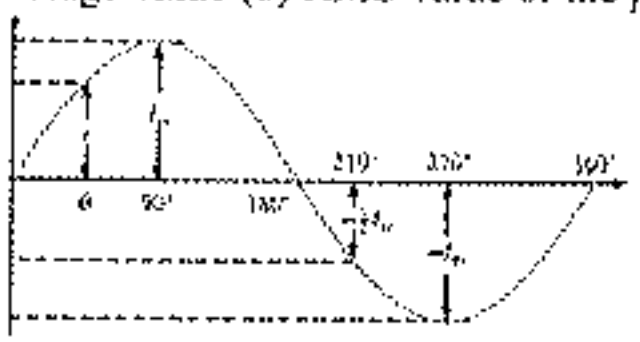
1. Convert the below Thevenin's equivalent circuit into Norton's equivalent circuit and find the current through load resistance.



2. Derive the equivalent capacitance "C", if two capacitors C1 and C2 are connected (a) in series and (b) in Parallel to the voltage source V volts.

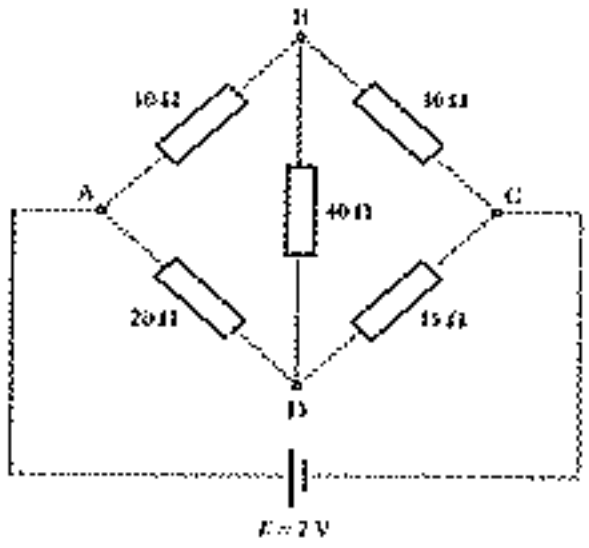
Part B (1 Q x 8 M= 08 Marks)

3. Determine (a)Average value (b) RMS value of the periodic current waveform shown in the figure.



Part C (1 Q x 10 M= 10 Marks)

4. The resistances of the various arms of a bridge are given in the figure shown. The battery has an e.m.f. of 2.0 V and a negligible internal resistance. Determine the value and direction of the current in BD, using Thevenin's theorem.



PRESIDENCY UNIVERSITY, BENGALURU
SCHOOL OF ENGINEERING

Max Marks: 30 | Max Time: 55Mins | Weightage: 15 % | **Set A**

TEST 1

II Semester 2016-2017 | Course: **EEE A104 Electrical Sciences** | 27 February 2017

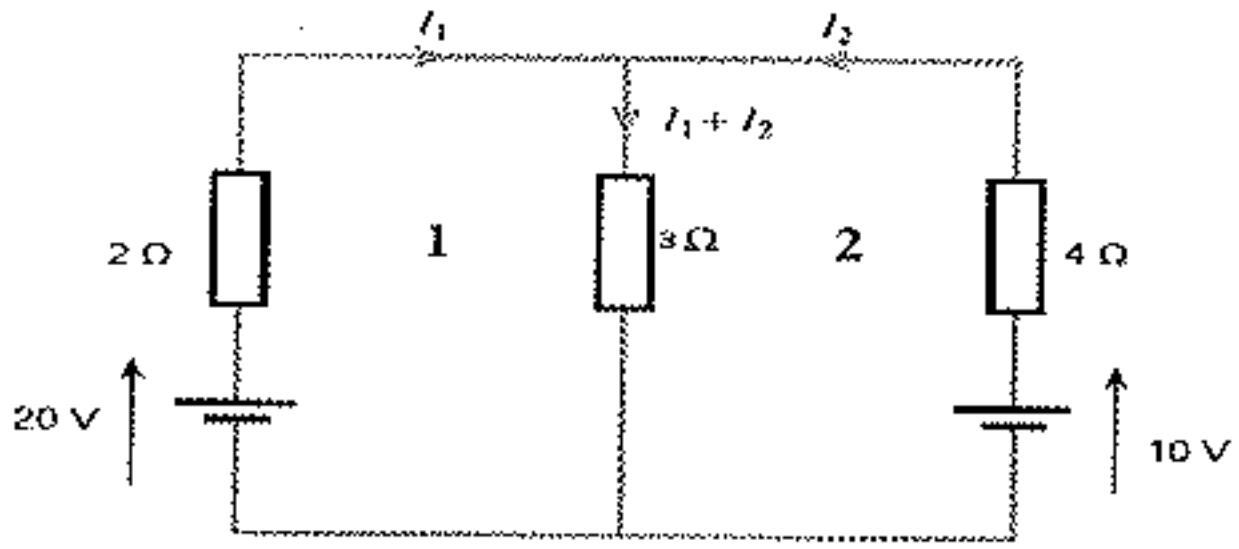
Instructions:

i. Write legibly
ii. Scientific calculators are permitted

Part A

(2 Q x 6 M= 12 Marks)

1. Calculate the currents in the network shown by Kirchhoff's laws

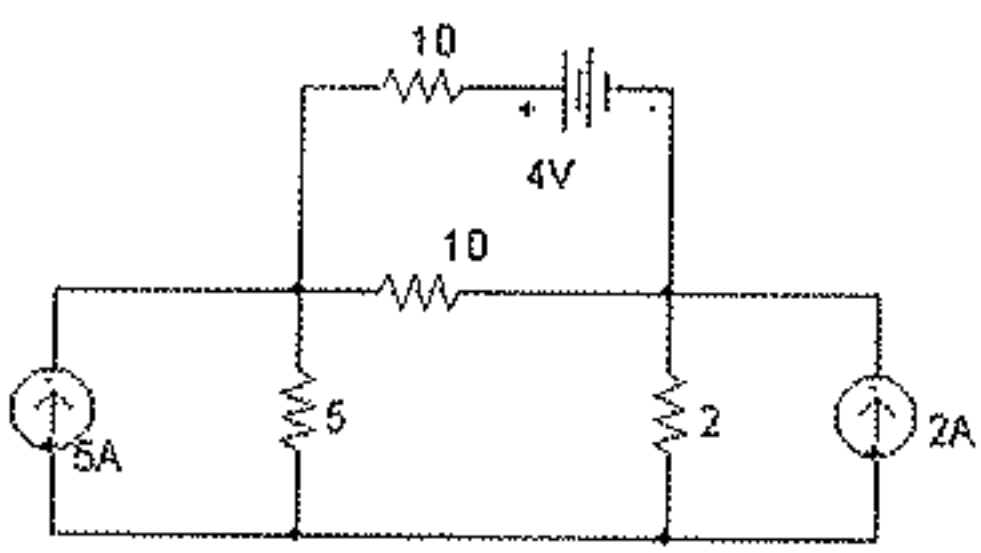


2. Explain briefly about p-n junction diodes and its VI characteristics with necessary diagrams.

Part B

(1 Q x 8 M= 08 Marks)

3. Find the current through 5 ohm resistor using Mesh Analysis.



Part C

(1 Q x 10 M= 10 Marks)

4. Calculate the current in 8 Ω resistor using Node voltage method.