Indian Institute of Technology, Bombay
Department of Electrical Engineering
Power Engineering-I (EE-114)

Friday
March 31 2023

Time:0.5 hour

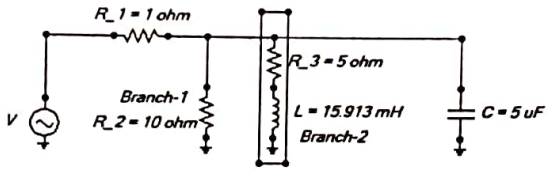
Quiz 01

Maximum Marks: 25

1. Determine the phasor form for the following voltages:
   1. $v_1(t) = 1500sin(1885.2t - \pi/3)$
   2. $v_2(t) = 50sin(314.2t) + 86.60cos(314.2t)$
   3. $v_3(t) = 10sin(377t) + 17.32cos(314.2t)$

[5]

2. Consider the single phase circuit show in Figure and answer the following questions. $V = 600\angle 0$ V. The frequency of the voltage source is 50 Hz.



   1. What is the impedance seen by the source?
   2. What is the current in branch 1 ?
   3. What is the current in branch 2 ?
   4. What are the various powers in branch 1?
   5. What are the various powers in branch 2?
   6. What is the power factor of the source?
   7. Sketch a neat phasor diagram for the circuit.
   8. Determine reduction in losses if capacitor of 5 μF is added in parallel with the two branches.

[20]

Student's name:

End of exam