

North South University
Fall 2021
EEE141 (sec – 5)
Final exam

Marks = 40

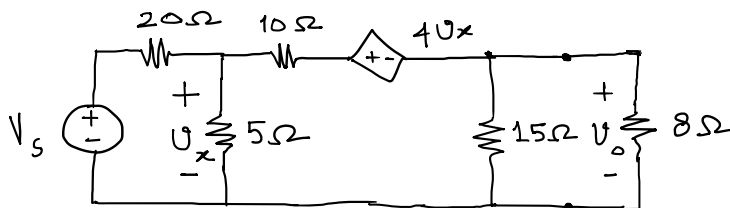
Time = 1 hour 20 minutes + 20 minutes (posting)

[NOTE:

1. Here all the source values V_s , I_s and I_m are equal to your unique exam number provided in the 2nd and 3rd pages.
2. Write your name, ID, and the unique exam number on the first page and write your name on every subsequent pages. Any exam page without name will be invalid and won't be checked.
3. For each minute late a whole number (- 1) will be deducted.
4. For any type of copying involved copies will get zero.]

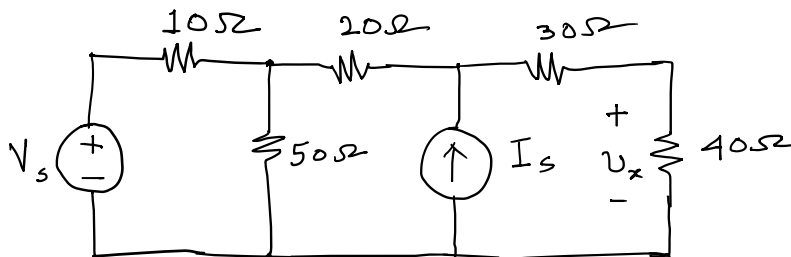
1. Use the *Thevenin's theorem* to find v_o in the following circuit.

[10]



2. Use the *superposition principle* to find v_x in the following circuit.

[10]

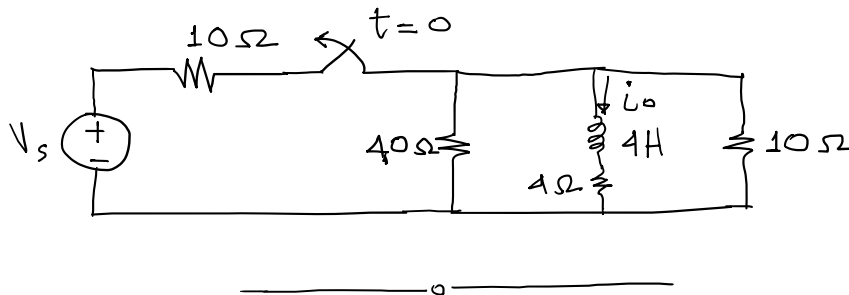


3. The current through an initially uncharged capacitor of $10\mu\text{F}$ is $i(t) = I_m \cos 20\pi t$ mA. Calculate the **voltage** across it at $t = 2\text{ms}$ and the **energy** stored in it at $t = 4\text{ms}$.

[10]

4. In the following circuit, find i_0 for $t > 0$.

[10]



Student ID	Unique Exam Number
1612281042	5
1620721042	10
1631136042	15
1632094642	20
1721089643	25
1731407042	30
1821781042	35
1821991042	40
1831780642	45
1831856642	50
1831896642	55
1911417642	60
1912110642	65
1912630642	70
1912662642	75
1921081642	80
1921132042	85
1921198042	90
1921304042	95
1921449642	100
1921495042	105
1921585042	110

1922215642	115
1931102042	120
1931406642	125
1931461042	130
2011059642	135
2011062042	140
2011731042	145
2011898042	150
2011939642	155
2012692042	160
2013322642	165
2014012042	170
2112427643	175
2112483625	180
2122365643	185
2122404643	190
2013499045	195