JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT

TEST -2 EXAMINATION- MAY-2023

COURSE CODE(CREDITS): 18B11EC212 (4) MAX. MARKS: 25

COURSE NAME: Basic Electrical Sciences

COURSE INSTRUCTORS: Lt. Pragya Gupta MAX. TIME: 1 Hour 30 Minutes

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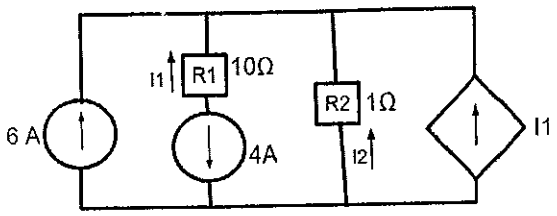
Note: *All questions are compulsory. Marks are indicated against each question in square brackets.*

Q1. Explain the current division rule with the help of a suitable circuit diagram.

[3]

Q2. Using Nodal Analysis, determine the value of I2 in the circuit given below:



[3]

Q3. State Superposition theorem and explain it with the help of a suitable circuit diagram.

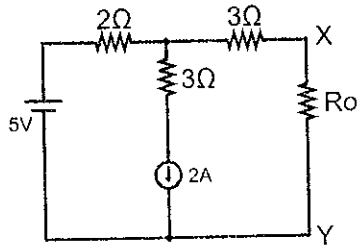
[3]

Q4. Prove that energy stored in the inductor is –

$$w_L(t) = \frac{1}{2}Li^2$$

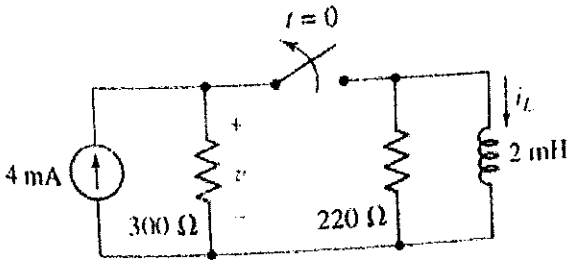
[2]

Q5 Considering Ro as load resistance, determine the Norton Resistance and Norton Current across terminals X-Y terminals:



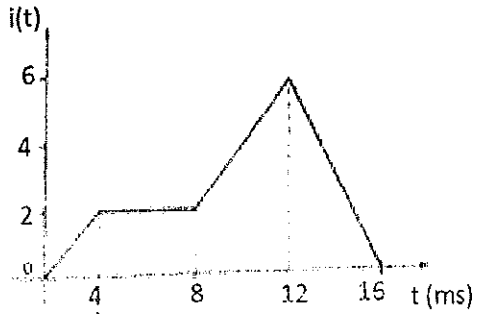
[2+3=5]

Q6. With the assumption that the switch in the circuit given below has been closed a long, long, long time, calculate $i_L(t)$ at (a) the instant just before the switch opens; (b) t=78.8 μs.



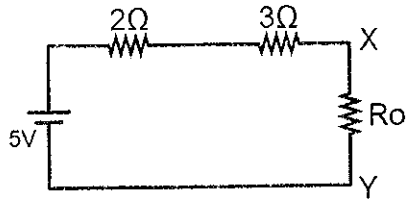
[3]

Q7 The current across the inductor of 5mH is shown in the figure given below. Draw the waveform for the voltage across the inductor.



[3]

Q8. Determine the value of Ro to deliver Maximum power to the resistor, Ro:



[3]