

Code No: R17A0261

MALLA REDDY COLLEGE OF ENGINEERING & TECHNOLOGY

(Autonomous Institution – UGC, Govt. of India)

II B.Tech I Semester Supplementary Examinations, April 2023**Electrical Technology****(ECE)**

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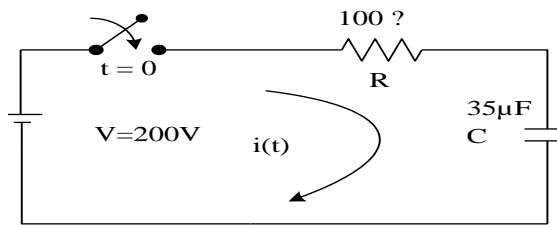
Time: 3 hours**Max. Marks: 70**

Note: This question paper Consists of 5 Sections. Answer **FIVE** Questions, Choosing ONE Question from each SECTION and each Question carries 14 marks.

SECTION-I

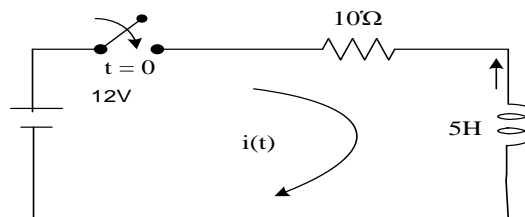
1 **A** Define the time constant of a series RC, RL and RLC circuit? [7M]

B A series RC circuit with $R=100\Omega$ and $C=35\mu\text{F}$ is supplied by a DC voltage $V=200\text{V}$ find the current assuming that there is no initial charge on the capacitor? [7M]

**OR**

2 **A** Explain the transient response of series RL circuit for DC excitation? [7M]

B In the circuit shown in fig .switch is closed at $t=0$ obtain the expression for the current in the current in the circuit and find at $t=0.25\text{sec}$ [7M]

**SECTION-II**

3 **A** Explain Hybrid parameters? Explain the condition for Reciprocity and symmetry? [10M]

B Express H - parameters in terms of Transmission – parameters? [4M]

OR

4 **A** Show that, when two 2-port networks N1 and N2 are connected in cascade the equivalent ABCD parameters of the combined network is the product of ABCD Parameters of each, individual 2 port Network [10M]

B What are the applications of two port Networks? [4M]

SECTION-III

5 **A** Define Attenuator? What is the difference between Attenuator and filter? What are the applications of Attenuator? [4M]

B Define High pass filter? Explain High pass filter and derived T-section and [10M]

π -section filter?

OR

- 6** **A** Define Filter? Explain classification of Filters. Mention its advantages and disadvantages? **[7M]**
- B** Define Pass Band and Stop Band filters and Explain Characteristic Impedance in the Pass and Stop band filters? **[7M]**

SECTION-IV

- 7** **A** Define Resonance? Explain parallel resonance of the circuits? **[10M]**
- B** A coil having a power factor of 0.5 is in series with a $79.57\mu\text{f}$ capacitor and when connected across a 50Hz supply ,the potential difference across the coil is equal to the potential difference across the capacitor .Find the resistance and inductance of the coil **[4M]**

OR

- 8** **A** Define Locus diagrams? Explain Locus diagram of a series RLC Circuits? **[7M]**
- B** A series RLC circuit which resonates at 500kHz has $R=25\Omega$, $L=100\mu\text{H}$ and $C=1000\text{pF}$.Determine the quality factor ,new value of C required To resonate at 500kHz when the value of L is doubled, and the new quality factor **[7M]**

SECTION-V

- 9** **A** Explain principle of operation of DC Machine with a neat sketch? **[7M]**
- B** Derive EMF equation for DC generator? **[7M]**

OR

- 10** **A** Explain speed control methods for dc shunt motor? **[7M]**
- B** A 6 pole lap wound shunt motor has 500 conductors' .The armature and shunt field resistances are 0.05Ω and 25Ω respectively .Find the speed of the motor if it takes 120A from a d.c supply of 100V.Flux per pole is 20mwb. **[7M]**
