



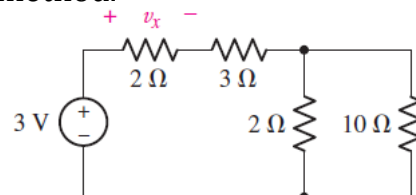
I B.Tech II Sem Regular Examination, October/November 2020

BASIC ELECTRICAL ENGINEERING**(ECE)****Time: 2 Hours.****Max. Marks: 70**

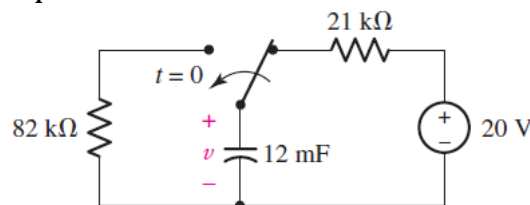
Note: 1. Answer any FIVE questions.

2. Each question carries 14 marks and may have a, b as sub questions.

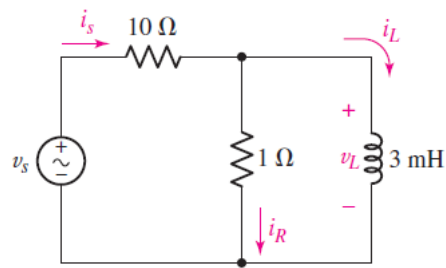
- 1 a) Define Thevenin's theorem and explain the steps involved in determining Thevenin's equivalent circuit with a suitable example. 7M
- b) Determine the voltage V_x in the figure shown below using voltage division method. 7M



- 2 For the circuit represented schematically in Figure below calculate $v(t)$ at $t = 0$, $t = 100$ s; (b) determine the energy still stored in the capacitor at $t = 100$ s. 14M



- 3 a) Define average value, rms value of a Sinusoidal wave signal. Derive the expressions for the same. 7M
- b) Give the Voltage, Current, Active and Reactive Power relationships in 3-phase Star connection loads. 7M
- 4 Draw the equivalent circuit diagram of single-phase Transformer indicating all the parameters on both sides. Obtain the equivalent circuit with all the parameters referred to secondary side of the Transformer with primary and secondary turns N_1 and N_2 respectively. Also draw the phaser diagram for on-load operating condition. 14M
- 5 a) In the circuit shown in below figure, if Voltage Source $v_s = 100 \cos(314.1t)$ then find current i_s . 7M



- b) Explain the construction details and basic principle of operation of a single-phase Transformer. 7M
- 6 Explain the concept of developing a rotating magnetic field in a 3-phase Induction machine. 14M
- 7 a) Draw the Torque-Slip characteristics of an Induction motor and give the expression relating them. Give the inferences that can be drawn from it. 7M
- b) Give the comparison between Switch Fuse Unit and MCB. 7M
- 8 Mention types of Batteries and explain the important characteristics of them. 14M

---oo0oo---