ACE Engineering College
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Question Paper Code: EE103ES

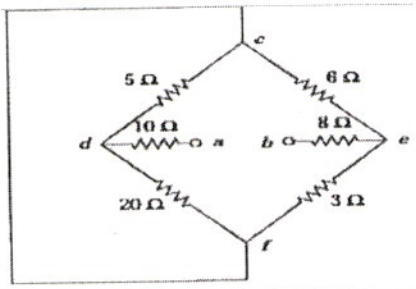
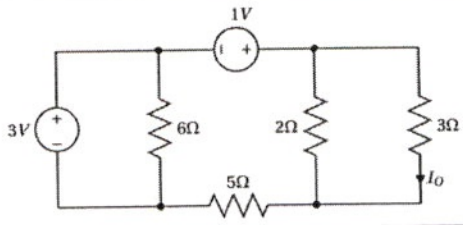
ACE-R20

I B. Tech- I Semester Supplementary Examination- November-2022
Basic Electrical Engineering
(Common to EEE, CSE, IT,CSD)

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

H. T. No										

*Answer any **5 Questions out of 8 Questions** from the following*

Q.No	Question	Marks
1. a)	State and Explain Kirchhoff's laws with an example.	7
b)	State and Explain Thevenin's theorem with an example.	7
2. a)	What is resonance in AC circuits? Derive an expression for resonant frequency for series RLC Circuit.	6
b)	A coil having a resistance of 20 ohms and an inductance of 0.2 H is connected in series with a 50 μF capacitor across a 250 V, 50 Hz supply. Calculate (i) the current (ii) the voltage across the coil and capacitor.	8
3. a)	Draw and explain the equivalent circuit of the transformer .	7
b)	Derive EMF equation of a single phase transformer.	7
4. a)	Analyze the RL and RC circuits with AC input and find the current equations. Draw the phasor diagrams.	8
b)	Find the equivalent resistance R_{ab} between terminals a and b. 	6
5. a)	Explain the differences between two winding transformer and auto transformer.	6
b)	Find I_o using the Superposition theorem. 	8
6. a)	Explain in detail the types of DC Motors.	7
b)	How the speed of the 3 phase induction motor is to be controlled? Explain.	7
7. a)	Explain about the generation of rotating magnetic field in a 3-phase induction motor.	7
b)	Explain the working principle of synchronous generator.	7
8.	Explain the following (i) Switch Fuse Unit (SFU) (ii) ELCB (iii) Types of Wires and Cables.	14