

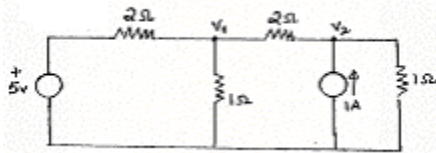
**TEEGALA KRISHNA REDDY ENGINEERING COLLEGE**  
 (UGC – AUTONOMOUS)  
 B TECH II Semester Examinations, September 2021  
 ( ECE )  
 BASIC ELECTRICAL ENGINEERING

Time : 3 Hours

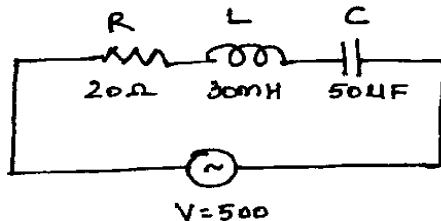
Max. Marks : 75

Answer any Five questions  
 All questions carry equal marks

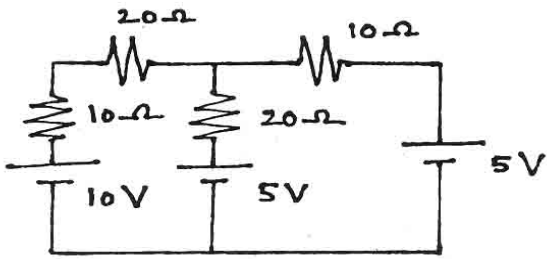
1. A) Derive an expression for current as a function of time in L-R series circuit when excited by a DC Source. (7M)  
 B) State superposition principle. Determine the current in all resistors using superposition theorem (8M)



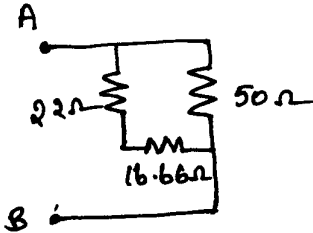
2. A) Define power factor. What is its significance. (6M)  
 B) A series connected RLC circuit has  $R=20\text{ohm}$ ;  $L=30\text{mH}$ ;  $C=50\text{uF}$ . Calculate the impedance and current when the circuit is excited by 500V, 50 Hz supply. (9M)



3. A) Distinguish between ideal and practical transformer. A single –phase 250 KVA 50 Hz transformer having the voltage ratio of 11000V/415V. Then calculate primary and secondary currents. (8M)  
 B) Describe the losses in a transformer with relevant expressions. (7M)
4. A) Explain the principle of operation of the three phase induction motor. (7M)  
 B) What is meant by slip in an induction motor? A 3-phase induction motor operates with 400V, 50Hz supply and has 4 poles and its rotor speed is 1440 rpm. Calculate the slip of induction motor. (8M)
5. A) Distinguish between MCB and MCCB. (8M)  
 B) List the type of wires and cables used in domestic wiring. (7M)
6. A) Verify KVL and KCL for the given circuit (9M)



B) Calculate the effective resistance between the terminals A and B. (6M)



7. A) Define voltage regulation and efficiency of a single phase transformer and then draw equivalent circuit of transformer. (8M)

B) An inductance of 0.5 H, a resistance of 5 Ohms and a capacitance of  $8 \mu\text{F}$  are in series across a 220V a.c supply. Calculate the Resonance frequency at which the circuit impedance becomes minimum. (7M)

8. A) On which parameters the speed of induction motor depends? List them and then describe any one method of starting a 3-phase induction motor. (8M)

B) What is battery? Describe the characteristics and uses of battery. (7M)