

TEE-201**B. Tech. (SECOND SEMESTER)
MID SEMESTER EXAMINATION, 2018****(All Branches)****BASIC ELECTRICAL ENGINEERING****Time : 1 : 30 Hours****Maximum Marks : 50**

Note : (i) This question paper contains *two* Sections.

(ii) Both Sections are compulsory.

Section—A

1. Fill in the blanks/True-False : (1×5=5 Marks)

(a) Dependent sources are of four types named as

(b) During resonance in series RLC circuit power factor will be unity value.

(True/False)

(c) In series RLC circuit power factor is lagging that means value of $X_C > X_L$.

(True/False)

(d) Six light bulbs are connected in parallel across 110 V. Each bulb is rated at 75 W. The current flows through each bulb is

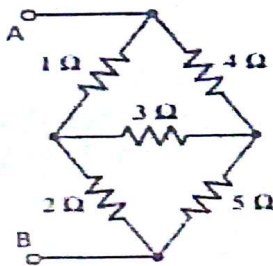
(2)

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- (e) In a series RLC circuit if quality factor Q is increased by twice then bandwidth is also increased twice. (True/False)
2. Attempt any *five* parts : (3×5=15 Marks)
- State and explain Ohm's law. Give its limitations.
 - What is meant by Bilateral and Unilateral elements ?
 - Define CDR and VDR for a circuit.
 - Draw the characteristics of ideal and practical voltage and current sources.
 - Define average value and r. m. s. value.
 - Define Quality factor in series RLC circuit.

Section—B

3. Attempt any *two* parts of choice from (a), (b) and (c). (5×2=10 Marks)
- State the statement of Superposition theorem and Thevenin's theorem.
 - For the below given circuit find equivalent resistance between A and B.

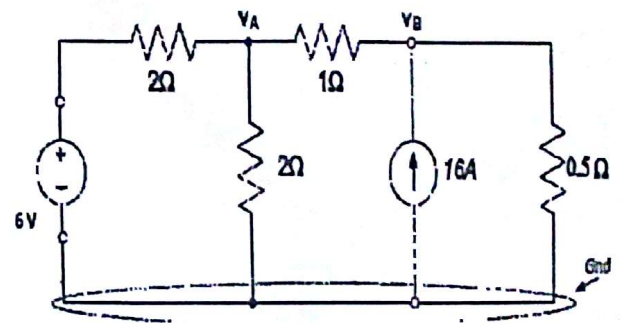


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(3)

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- (c) Derive the expression for voltage and current in series RC circuit with phasor diagram.
4. Attempt any *two* parts of choice from (a), (b) and (c). (5×2=10 Marks)
- Define maximum power transfer theorem and determine the condition of maximum power.
 - Find the value nodal voltages V_A and V_B using nodal analysis.



- (c) Derive the expression for Delta to Star conversion in resistive d. c. network.
5. Attempt any *two* parts of choice from (a), (b) and (c). (5×2=10 Marks)
- Derive the expression for bandwidth in series RLC circuit.

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P.T. O.

- (b) A coil of $2\ \Omega$ resistance and $0.01\ \text{H}$ inductance is connected in series with a capacitor across $230\ \text{V}$ mains. What must be the capacitance, in order that maximum current occurs at a frequency of $50\ \text{Hz}$? Find also the current and the voltage across the capacitor.
- (c) For given circuit shown below find maximum power across load resistance R_L .

