KUMARAGURU
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B.E/B.TECH DEGREE EXAMINATIONS: NOV/DEC 2023

(Regulation 2018)

Third Semester

FASHION TECHNOLOGY

U18EEI3206: Basic Electrical and Electronics Engineering

COURSE OUTCOMES

CO1: Acquire basic knowledge on DC and AC circuits.

CO2: Understand the construction, working principle and applications of DCmachines

CO3: Understand the construction, working principle and applications of AC machinesand transformers.

CO4: Acquire basic knowledge on logic gates, semiconductor devices and theirapplications.

CO5: Identify electronic components and use them to design simple circuits.

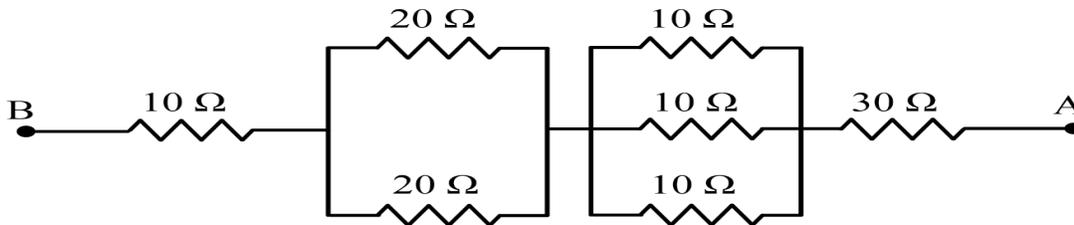**Time: Three Hours**   **Maximum Marks: 100**

Answer all the Questions:-

**PART A (10 x 2 = 20 Marks)**

(Answer not more than 40 words)

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1.	State Ohm's Law and mention its disadvantage	CO1	[K2]
2.	What is the equivalent resistance between B and A?	CO1	[K3]

3.	Draw the waveform and phasor diagram of pure inductive load connected in AC supply.	CO2	[K2]
4.	Draw the Power triangle of AC circuit.	CO2	[K2]
5.	Mention the function of commutator and brushes in DC generator.	CO3	[K2]
6.	Why is the single-phase induction motor not self-starting?	CO3	[K2]
7.	Mention the application of BJT in aircraft system.	CO5	[K3]
8.	What are types of MOSFET?	CO4	[K2]
9.	What are universal gates? Give example.	CO5	[K1]
10.	Mention the function of decoder	CO4	[K2]

Answer any FIVE Questions:-
PART B (5 x 16 = 80 Marks)
(Answer not more than 400 words)

11. a) Explain the Kirchhoff's voltage and current laws with example.   6   CO1   [K₂]

    b) Use mesh analysis to determine the three mesh currents in the circuit of figure shown in below.   10   CO1   [K₂]
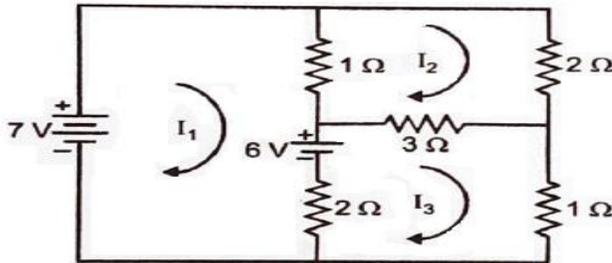
12. a) Explain the behavior of AC in RL series circuit with waveform and Phasor diagram.   10   CO2   [K₃]

    b) A 200 Ω resistor and a 50 Ω X_L are placed in series with a voltage source, and the total current flow is 2 amps, as shown in Figure.   6   CO2   [K₃]
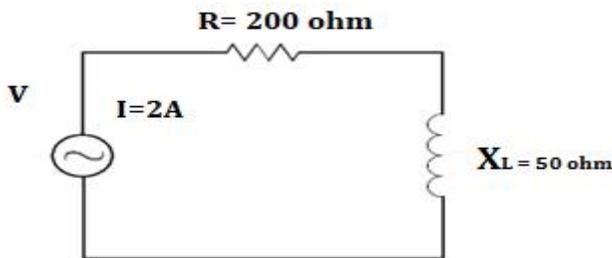
Find the Power Factor(pf),Applied voltage V, Real Power P.

13. a) Describe the construction of DC machine with neat diagram.   10   CO3   [K₂]
    b) Explain the operation of single-phase capacitor start induction motor.   6   CO3   [K₂]

14. a) Explain the working of PN junction diode and draw its V-I characteristics.   8   CO4   [K₂]
    b) Discuss about the operation of Full wave rectifier with waveforms.   8   CO4   [K₂]

15. a) Explain the full adder circuits with truth table and logic diagram.   8   CO5   [K₂]
    b) Describe about working of 1 to 4 multiplexer with block diagram and truth table.   8   CO5   [K₂]

16. a) Draw and explain the input and output characteristics of CE configuration of transistor.   8   CO4   [K₂]

    b) Derive an expression for average and RMS value of sine wave.   8   CO1   [K₂]

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