KUMARAGURU
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B.E. DEGREE EXAMINATIONS: APRIL / MAY 2023

(Regulation 2018)

Second Semester

ELECTRONICS AND INSTRUMENTATION ENGINEERING

U18EII2201: Foundation in Electrical and Electronics Engineering

COURSE OUTCOMES

CO1: Analyze the given DC circuits and AC resonant circuits.
CO2: Solve the given networks by applying circuit theorems.
CO3: Explain the characteristics and applications of various electronic devices.
CO4: Illustrate the concepts of Electrical Machines and Transformers.
**CO5:** Simulate and analyze the given Electrical and Electronics circuit.

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

Answer all the Questions
### PART A (10 x 2 = 20 Marks)
(Answer not more than 40 words)

1.	Define charge.	CO1	[K_1]
2.	State Kirchhoff's Laws.	CO1	[K_1]
3.	State Norton's Theorem.	CO2	[K_1]
4.	What is the limitation of maximum power transfer theorem?	CO2	[K_1]
5.	Define intrinsic standoff ratio of UJT.	CO2	[K_1]
6.	Why MOSFET is called voltage controlled device?	CO3	[K_2]
7.	Define Latching Current.	CO3	[K_1]
8.	List the applications of LED.	CO3	[K_1]
9.	Why transformer rating is in kVA?	CO4	[K_2]
10.	Why single phase induction motors are not self starting?	CO4	[K_2]

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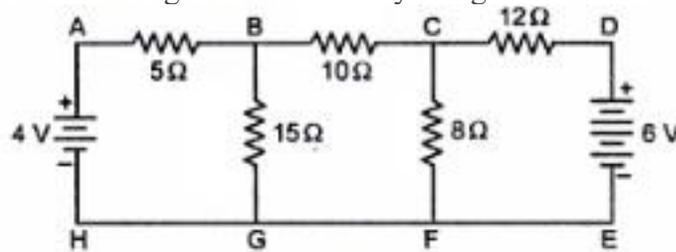**(Answer not more than 400 words)**

11.	a)	Compare series and parallel circuits with suitable examples.	6	CO1	[K₂]
	b)	Determine the current i₁, i₂ and i₃ of the given network by mesh current method.	10	CO1	[K₃]
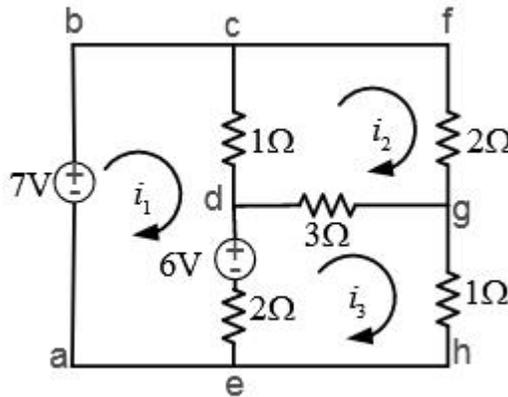
12		Determine the voltages 1 and 2 of the given network by nodal analysis method.	16	CO1	[K₃]
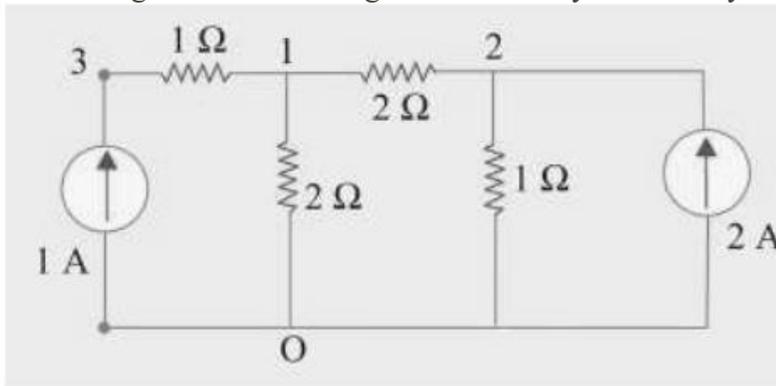
13.		Calculate the current through 10 Ω resistor by using Thevenin's theorem.	16	CO2	[K₃]

14.	a)	Explain the V-I characteristics of p-n Junction diode.	8	CO3	[K₂]
	b)	Discuss the working principle of NPN type transistor operated under CE configuration.	8	CO3	[K₂]
15.		Explain the V-I characteristics of SCR with neat diagrams	16	CO3	[K₂]
16.	a)	With a neat sketch, describe the constructional features and working principle of DC Motors.	8	CO4	[K₂]
	b)	With a neat sketch, describe the constructional features and working principle of three phase Induction Motors.	8	CO4	[K₂]

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