



Government College of Engineering Kannur

Name : Sanjeeb J

Roll No. : 60

**DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING**

**Series Exam I**

**Ist Semester**

**GXEST104 - Introduction to Electrical & Electronics Engineering**

**CS 2K24**

**Total Mark: 15**

**Total Time: 1 Hrs : 30 Mins**

**Course Outcome (CO)**

**CO4** Explain the fundamental concepts of electronic components and devices

**PART A**

No.	Questions	Marks	CO
1.	Distinguish between active and passive components	3	CO4
2.	What do you understand by an ideal diode? Draw its V-I characteristics	3	CO4

**PART B**

No.	Questions	Marks	CO
3. a)	Compare different types of rectifiers using diode.	4	CO4
3. b)	Derive the ripple factor of half wave rectifier	5	CO4

**OR**

4. a)	Explain the working of a diode under forward and reverse biased conditions. Draw the V-I characteristics	4	CO4
4. b)	Draw the block diagram of DC power supply and explain the function of each block.	5	CO4



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Government College of Engineering Kannur

**S1: First Semester B-Tech Degree Exam (CSE: 2024 Admsn)**

Time: 1½ hr

First Internal Test, November 2024

Max. Marks: 30

**GXEST104: INTRODUCTION TO ELECTRICAL AND ELECTRONICS ENGINEERING**

Course Outcome: Student will be able to:

CO1: Apply the fundamental concepts and circuit laws to solve simple DC/AC electric circuits

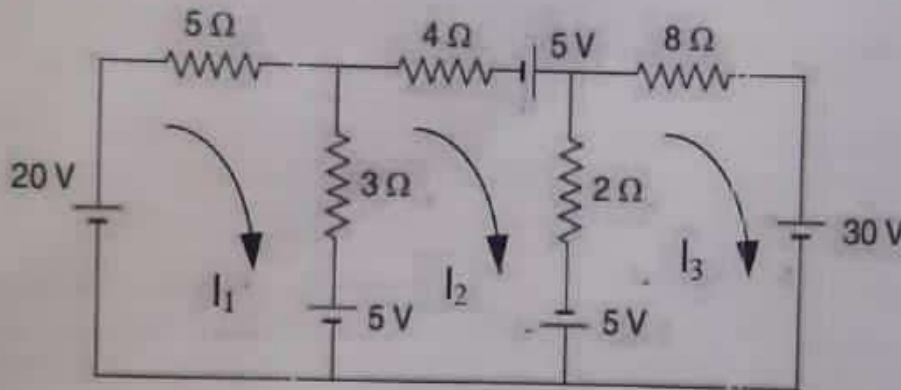
CO2: Develop and solve models of magnetic circuits

**PART A****Answer ALL Questions (Each question carries 3 marks: 2 x 3 = 6 Marks)**

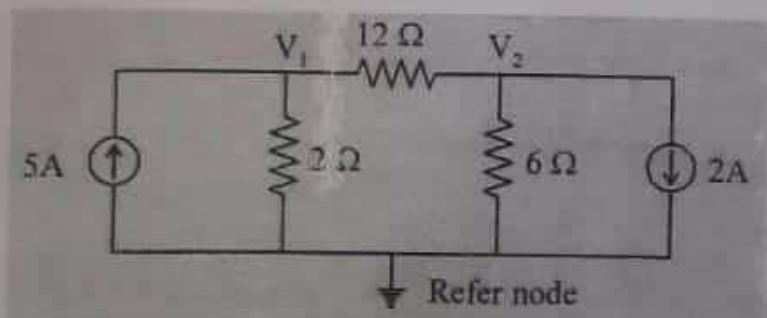
- 1 Write down the relation between voltage and current in an inductor. Also derive an expression for the energy stored in an inductor [CO1]
- 2 Compare electric and magnetic circuits with circuit diagram. [CO2]

**PART B: Answer any ONE Full question (9 x 1 = 9 Marks)**

- 3 Using mesh analysis determine the currents in different resistors. [CO1]  
9 Marks

**OR**

- 4 a) Determine the node voltages  $V_1$  and  $V_2$  for the network shown in figure.

[CO1]  
6Marks

- b) Three resistors 6Ω, 10Ω, and 15Ω are connected in star configuration. Obtain the equivalent delta configuration?

[CO1]  
3Marks



**DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING**

**Series Exam 3**

**Ist Semester**

**GXEST104 - Introduction to Electrical & Electronics Engineering**

**CS 2K24**

**Total Mark: 15**

**Total Time: 1 Hrs : 30 Mins**

Course Outcome (CO)	
CO3	Understand three phase AC systems
CO4	Explain the fundamental concepts of electronic components and devices
CO5	Outline the principles of communication systems

PART A			
No.	Questions	Marks	CO
1.	Explain the need of using smoothing circuits in a power supply.	3	CO3
2.	Write the expression for the instantaneous voltage of AM wave. Draw the frequency spectrum of an AM wave. How much is the bandwidth of AM wave?	3	CO4

PART B			
No.	Questions	Marks	CO
3. a)	Explain why it is necessary to use a voltage regulator circuit in a power supply. Draw the circuit diagram of a voltage regulator circuit using a Zener diode. Explain its working	5	CO3
3. b)	Compare AM and FM	4	CO5

OR			
4. a)	Explain the working of a full wave bridge rectifier with capacitor filter with neat diagram. Derive the expression for ripple factor.	5	CO3
4. b)	Compare 3G,4G, 5G and 6G communication technologies.	4	CO5



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Government College of Engineering Kannur

**S1: First Semester B-Tech Degree Exam (CSE: 2024 Admsn)**

Time: 1 1/2 hr

Second Internal Test, December 2024

Max. Marks: 30

**GXEST104: INTRODUCTION TO ELECTRICAL AND  
ELECTRONICS ENGINEERING****(for S1 CSE)***Course Outcome: Student will be able to:**CO2: Develop and solve models of magnetic circuits**CO3: Apply the fundamental laws of electrical engineering to solve simple ac circuits in steady state***PART A****Answer ALL Questions (Each question carries 3 marks: 2 x 3 = 6 Marks)**

- 1 Define self-inductance and derive an expression for the same [CO2]  
2 An alternating voltage is given by: [CO3]

$$v = 141.4 \sin 377t$$

Find

- i) The maximum value  
ii) Frequency  
iii) Time period

**PART B: Answer any ONE Full question (9 x 1 = 9 Marks)**

- 3 a) Derive the expression for rms and average current of a sinusoidal waveform [CO3]  
5 Marks  
b) State and explain Faraday's laws of Electromagnetic induction [CO2]  
4 Marks

**OR**

- 4 A resistance of  $10\Omega$ , an inductance of  $0.3H$  and a capacitance of  $100\mu F$  are [CO3]  
connected in series across  $230V$ ,  $50\text{ Hz}$  single phase supply. Calculate : 9Marks  
i) Impedance of the circuit ii) Current through the circuit  
iii) Voltage across R, L and C, and iv) Power consumed by the circuit