VIDYA JYOTHI INSTITUTE OF TECHNOLOGY
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[Accredited by NAAC A+& NBA, Approved by AICTE New Delhi & Permanently Affiliated to JNTUH]
Aziznagar Gate, ChilkurBalaji Road, Hyderabad - 500 075. **Subject Code: A222402**

I B Tech II SEMESTER REGULAR & SUPPLEMENTARY EXAMINATION, JULY-2024

Subject: Electronic Devices and Circuits **Time: 3 hours**
Branch: ECE,CSE,IT,AI,CSE(DS),CSE(AI&ML) & AI-DS **Max. Marks: 60**

Note: This Question Paper contains two Parts A and B. Answer all the questions.
- Part A is compulsory which carries 10 marks. Ten questions from five units.
- Part-B consists of 5 Questions (numbered from 11 to 15) carrying 10 marks each.

Bloom's Level:

Remember	L1	Apply	L3	Evaluate	L5
Understand	L2	Analyze	L4	Create	L6

		Outcomes		Bloom's Level	Marks
PART-A	**10Q x 1M=10 Marks**				
ANSWER ALL THE QUESTIONS		**CO**	**PO**		
1	Define static and dynamic resistance of P-N diode.	1	1,2,6	L1	1M
2	What is Reverse Recovery Time?	1	1,2,6	L1	1M
3	Define ripple factor.	2	1,2,6	L2	1M
4	Define clamping theorem.	2	1,2,6	L1	1M
5	How the transistor can be used as amplifier?	3	1,2,6	L1	1M
6	Define current amplification factor of CB.	3	1,2,6	L1	1M
7	Write JFET current equation.	4	1,2,6	L1	1M
8	Why FET called as voltage variable resistor?	4	1,2,6	L1	1M
9	Draw the V-I characteristics of UJT.	5	1,2,6	L2	1M
10	What is the application of Zener diode?	5	1,2,6	L1	1M
PART-B	**5Q x 10M = 50 Marks**				
ANSWER ALL THE QUESTIONS					
11 i)	Derive an expression for Transition capacitance.	1	1,2,3,4,6	L3	10M
	[OR]				
ii)	Explain the operation of Diode forward and Reverse bias with the help of V-I characteristics.	1	1,2,3,4,6	L2	10M
12 i)	Explain the operation of Half Wave Rectifier with necessary diagrams.	2	1,2,3,4,6	L3	10M
	[OR]				
ii)	Explain any 3 types of clipper circuits.	2	1,2,3,4,6	L2	10M
13 i)	Explain the construction of PNP transistor.	3	1,2,3,4,6	L2	10M
	[OR]				
ii)	How the Transistor can be used as switch? Explain its switching characteristics.	3	1,2,3,4,6	L1	10M
14 i)	Explain about drain characteristics of JFET with neat diagram.	4	1,2,3,4,6	L2	10M
	[OR]				
ii)	Write the differences between BJT, FET and MOSFET.	4	1,2,3,4,6	L2	10M
15 i)	Discuss Tunnel diode with energy band diagrams.	5	1,2,3,4,6	L2	10M
	[OR]				
ii)	Explain Forward and reverse bias characteristics of SCR.	5	1,2,3,4,6	L2	10M

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I B Tech II SEMESTER REGULAR EXAMINATION, AUGUST-2023

Subject: Electronic Devices and Circuits **Time: 3 hours**

Branch: ECE, CSE, IT, AI, CSE(DS), CSE(AI&ML) & AI-DS **Max. Marks: 60**

Note: This Question Paper contains two Parts A and B. Answer all the questions.

- Part A is compulsory which carries 10 marks. Ten questions from five units.
- Part-B consists of 5 Questions (numbered from 11 to 15) carrying 10 marks each.

Bloom's Level:

Remember	L1	Apply	L3	Evaluate	L5
Understand	L2	Analyze	L4	Create	L6

		Outcomes		B L	Marks
PART-A	**10Q x 1M=10 Marks**	**CO**	**PO**		
ANSWER ALL THE QUESTIONS					
1	Draw the V-I characteristics of a PN diode.	1	1-12	L1	1M
2	Describe the equivalent circuit model of an ideal diode.	1	1-12	L1	1M
3	Define A) Rectifier Efficiency B) Ripple factor	2	1-12	L1	1M
4	Draw Positive and negative clamper circuits.	2	1-12	L1	1M
5	How can a BJT be used as a switch?	3	1-12	L1	1M
6	Define A) Rise Time B) Fall Time	3	1-12	L3	1M
7	Compare BJT and FET.	4	1-12	L2	1M
8	What is the Pinch-Off Voltage in a JFET?	4	1-12	L3	1M
9	Which device converts sunlight into electricity?	5	1-12	L1	1M
10	Define Forward blocking mode and Reverse blocking mode in a SCR	5	1-12	L3	1M
PART-B	**5Q x 10M = 50Marks**				
ANSWER ALL THE QUESTIONS					
11 i)	Explain the forward and reverse bias characteristics of PN junction diode.	1	1-12	L3	10M
	[OR]				
ii) a	Define static and dynamic resistance of PN diode.	1	1-12	L4	2M
b	How a diode can be used as a switch ?Explain the switching times of a PN junction diode.	1	1-12	L3	8M
12 i)	Describe the operation of Half Wave Rectifier with and without filters.	2	1-12	L3	10M
	[OR]				
ii)	Describe the operation of center tapped full wave rectifier along with input and output waveforms.	2	1-12	L3	10M
13 i) a	Write the current components of NPN transistor and explain.	3	1-12	L2	3M
b	Draw and explain the common base transistor characteristics.	3	1-12	L5	7M
	[OR]				
ii)	Explain the input and output characteristics of CE configuration.	3	1-12	L2	10M
14 i)	Draw and explain the construction and operation of Enhancement mode MOSFET with its characteristics.	4	1-12	L4	10M
	[OR]				
ii)	Write about the JFET Volt-Ampere Characteristics.	4	1-12	L1	10M
15 i)	With simple circuit explain how the Zener diode acts as a voltage regulator.	5	1-12	L1	10M
	[OR]				
ii) a	Write a short note on LED and varactor diode.	5	1-12	L2	5M
b	Write a short note on UJT and Tunnel diode.	5	1-12	L2	5M

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I B. Tech. II SEMESTER SUPPLEMENTARY EXAMINATION, FEBRUARY-2024

Subject: Electronic Devices and Circuits **Time: 3 hours**
Branch: ECE, CSE, IT, AI, CSE(DS) ,CSE(AI&ML) & AI-DS **Max. Marks: 60**

Note: This Question Paper contains two Parts A and B. Answer all the questions.
- Part A is compulsory which carries 10 marks. Ten questions from five units.
- Part-B consists of 5 Questions (numbered from 11 to 15) carrying 10 marks each.

Bloom's Level:

Remember	L1	Apply	L3	Evaluate	L5
Understand	L2	Analyze	L4	Create	L6

	PART-A ANSWER ALL THE QUESTIONS 10Q x 1M=10 Marks	Outcomes CO	Outcomes PO	Bloom's Level	Marks
1	What are static and dynamic resistances of a diode?	1	1	L1	1M
2	Describe the equivalent circuit model of an ideal diode.	1	1	L1	1M
3	Draw the series clipper circuit.	2	2	L2	1M
4	What is Rectifier?	2	2	L3	1M
5	Why BJT is called Bipolar Transistor?	3	3	L3	1M
6	List out the Configurations of a BJT.	3	3	L1	1M
7	What is Pinch-Off Voltage in a JFET?	4	4	L3	1M
8	Draw the symbols of D-MOSFET and E-MOSFET .	4	4	L4	1M
9	Draw the equivalent circuit of UJT.	5	5	L1	1M
10	Draw the Circuit Symbols of the following devices. A) Tunnel diode B) SCR	5	5	L3	1M
	PART-B				
	ANSWER ALL THE QUESTIONS 5Q x 10M = 50Marks				
11 i)	With neat waveforms explain switching times of a PN junction diode.	1	1	L1	10M
	[OR]				
ii)	Sketch and explain the volt-ampere characteristics of a PN Junction diode.	1	1	L3	10M
12 i)	Discuss the working of Bridge Rectifier & define its Ripple factor and efficiency.	2	2	L2	10M
	[OR]				
ii) a	Write about the following factors of a full wave rectifier. A) RMS Current B) Average Current C) PIV	2	2	L4	5M
b	Describe the operation of a positive clamper circuit using a PN junction diode with neat waveforms.	2	2	L4	5M
13 i)	Explain the input and output characteristics of CE configuration.	3	3	L4	10M
	[OR]				
ii) a	What is the early effect?	3	3	L2	2M
b	Describe the operation of a BJT in common base configuration with its VI characteristics.	3	3	L3	8M
14 i)	Detail the construction of an n-channel MOSFET of depletion type. Draw and explain its Characteristics.	4	4	L4	10M
	[OR]				
ii)	Explain the construction and principle of operation of n-channel JFET.	4	4	L2	10M
15 i) a	Differentiate between zener diode and normal PN junction diode.	5	5	L3	5M
b	With neat sketch explain principle and operation of Zener diode.	5	5	L2	5M
	[OR]				
ii)	Describe the V-I characteristics of SCR.	5	5	L1	10M