Code No: R2021041 **R20** SET - 1

II B. Tech I Semester Regular Examinations, Feb/March - 2022
ELECTRONIC DEVICES AND CIRCUITS
(Com to ECE, EIE, ECT)

Time: 3 hours Max. Marks: 70

Answer any **FIVE** Questions each Question from each unit
All Questions carry **Equal** Marks
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1	a)	Explain about formation of PN Junction and how the diode acts as switch.	[7M]
	b)	Derive the expression for E_G in case of intrinsic semiconductor.	[7M]
		Or	
2	a)	Explain PN diode characteristics in forward bias and reverse bias regions.	[7M]
	b)	What is diffusion capacitance of a semiconductor diode? Explain how it arises.	[7M]
3	a)	Explain V-I characteristics of a Tunnel diode with the help of its Fermi level diagram.	[7M]
	b)	Explain construction and operation of a Half Wave rectifier and Find the PIV, RMS voltage ripple efficiency of Half Wave Rectifier.	[7M]
		Or	
4	a)	Explain about Varactor diode with characteristics.	[7M]
	b)	Derive the ripple factor and efficiency for full wave rectifier.	[7M]
5	a)	Explain with a neat sketch about various current components of a transistor?	[7M]
	b)	Explain about DC load line and AC load line? Explain the criteria for fixing operating point.	[7M]
		Or	
6	a)	With the help of neat diagram, explain about operation of an N- channel JFET?	[7M]
	b)	Compare MOSFET with JFET.	[7M]
7	a)	Explain the input and output characteristics of a transistor in CB configuration.	[7M]
	b)	Why self-bias technique is so popular? And derive an expression for its stability factor.	[7M]
		Or	
8	a)	With near circuit diagram, explain the Voltage Divider Biasing.	[7M]
	b)	Write a short note on Stabilization against variations in V_{BE} and β.	[7M]
9	a)	Explain how h-parameters are determined from transistor characteristics.	[7M]
	b)	Explain the JFET Small signal Model.	[7M]
		Or	
10	a)	Explain the hybrid small signal model for common collector configuration.	[7M]
	b)	Explain the FET Common Drain Amplifier.	[7M]
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