Reg. No. : | | | | | | | | | | |

Question Paper Code: 93B05

B.E. / B.Tech. DEGREE EXAMINATION, MAY 2022

Third Semester

Biomedical Engineering

19UBM305 - Semiconductor Devices and Circuits

(Regulation 2019)

Duration: Three hours Maximum: 100 Marks

Answer ALL Questions

PART A - (10 x 2 = 20 Marks)

1.	Draw V-I characteristics of PN junction diode.	CO1	U
2.	List the applications of tunnel diode.	CO1	U
3.	Compare JFET and MOSFET.	CO3	Ana
4.	Analyze the region of operation for the types of MOSFET.	CO3	Ana
5.	Define critical frequency(f_c).	CO1	U
6.	What are the benefits of h-parameter?	CO1	U
7.	Why RC phase shift oscillator called so?	CO3	Ana
8.	How does an oscillator differ from an amplifier?	CO3	Ana
9.	What is Bistable multivibrator?	CO1	U
10.	What are the applications of clamping circuits?	CO1	U

PART – B (5 x 16= 80Marks)

11.	(a)	Explain the operation of forward biased and reverse biased PN junction Diode	CO1-	U	(16)
		Or			
	(b)	Explain in detail about transistor circuit bias.	CO1-	U	(16)
12.	(a)	Explain in detail the working of JFET .Draw its drain and transfer characteristics.	CO1-	U	(16)
		Or			
	(b)	Discuss about the symbol, construction, working and characteristics of UJT and SCR.	CO1-	U	(16)

13.	(a)	Analyze the single stage CE amplifier using the parameters voltage gain, current gain, input impedance and output admittance.	CO3- Ana	(16)
		Or		
	(b)	Analyze the frequency response of single stage transistor amplifier circuit.(BJT or FET)	CO3- Ana	(16)
14.	(a)	Draw the circuit diagram of a current series feedback amplifier and derive expressions for voltage gain with and without feedback.	CO2- App	(16)
		Or		
	(b)	With a neat sketch explain the working of an RC phase shift oscillator and derive an expression for frequency of oscillation for an RC phase shift oscillator.	CO2- App	(16)
15.	(a)	Draw the circuit diagram of Schmitt trigger circuit and explain its operation with waveforms.	CO1- U	(16)
		Or		
	(b)	With a neat sketch, explain the working of Bi stable multivibrator	CO1- U	(16)