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

Question Paper Code: 93B05

B.E. / B.Tech. DEGREE EXAMINATION, NOV 2023

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 CO3- Ana (16)
voltage gain, current gain, input impedance and output
admittance.

Or

(b) Analyze the frequency response of single stage transistor CO3- Ana (16)
amplifier
circuit.(BJT or FET)

14. (a) Draw the circuit diagram of a current series feedback amplifier CO2- App (16)
and derive expressions for voltage gain with and without
feedback.

Or

(b) With a neat sketch explain the working of an RC phase shift CO2- App (16)
oscillator and derive an expression for frequency of oscillation for
an RC phase shift oscillator.

15. (a) Draw the circuit diagram of Schmitt trigger circuit and explain its CO1- U (16)
operation with waveforms.

Or

(b) With a neat sketch, explain the working of Bi stable multivibrator CO1- U (16)

93B05