ANURAG Engineering College
(An Autonomous Institution)
II B.Tech I Semester Supplementary Examinations, December – 2024
ELECTRONIC DEVICES AND CIRCUITS
(COMMON TO (R18-EEE, ECE & CSE) AND (R15-CSE))

Time: 3 Hours | **Max. Marks: 75**

Section – A (Short Answer type questions) | (25 Marks)
Answer All Questions

		Course Outcome	B.T Level	Marks
1.	Draw the VI characteristics of Schottky Barrier Diode	CO1	L1	2M
2.	Define Ripple Factor and Rectifier Efficiency.	CO1	L2	3M
3.	Explain why BJT is called Current Controlled Device?	CO2	L1	2M
4.	Define Pinch-off Voltage.	CO2	L2	3Mf
5.	Define Operating Point.	CO3	L1	2M
6.	What is meant by Thermal Runway?	CO3	L2	3M
7.	Draw the h parameter Equivalent Circuit Diagram of BJT in Common Base Configuration.	CO4	L1	2M
8.	Compare CB, CE and CC Amplifiers.	CO4	L2	3M
9.	Classify Feedback Amplifiers.	CO5	L1	2M
10.	Write a short note on Crystal Oscillator.	CO5	L2	3M

Section B (Essay Questions)
Answer all questions, each question carries equal marks. | **(5 X 10M = 50M)**

			Course Outcome	B.T Level	Marks
11.	A)	Make use of the Characteristics of Zener diode to explain the operation as a voltage regulator.	CO1	L3	10M
		OR			
	B)	Determine ripple factor and rectification efficiency for the Bridge rectifier.	CO1	L3	10M
12.	A)	Draw the transistor circuit in CE configuration. Sketch the output characteristics. Indicate 'active', 'saturation' and 'cutoff region'. Briefly explain the nature of those curves.	CO2	L3	10M
		OR			
	B)	Analyze the construction and working of n-channel JFET. Draw the Drain and Transfer characteristics.	CO2	L3	10M
13.	A)	Make use of the circuit diagram to explain the principle operation of Collector to Base Bias arrangement. Relate the expression for S and infer how the stability factor can be improved.	CO3	L3	10M
		OR			
	B)	In a Silicon transistor circuit with a fixed bias, V_{cc}=9V, R_c =3KΩ, R_B=8KΩ, β=50, V_{BE}=0.7V. Evaluate the operating point and Stability factor.	CO3	L3	10M

14.	A)	Draw the Circuit of CE amplifier. Solve the expressions for the performance quantities.	CO4	L3	10M

OR

	B)	A CC amplifier is driven by a source of internal resistance R_s=1kΩ, and load resistance R_L=2kΩ. The transistor parameters are h_{ic}=1.1kΩ, h_{fc}=-51, h_{rc}=1 and h_{oe}=25µA/V. Determine all Current and Voltage gains, input and output resistances of the amplifier.	CO4	L3	10M

15.	A)	For a Current Series feedback amplifier, Obtain for AV,Rif and Rof	CO5	L3	10M

OR

	B)	Draw the circuit of Hartley oscillator and explain its working. Derive the expressions for frequency of oscillation and condition for starting of oscillation	CO5	L3	10M