Reg. No.															

Question Paper Code	14000

B.E. / B.Tech. - DEGREE EXAMINATIONS, NOV / DEC 2025

Third Semester

Electronics and Instrumentation Engineering

20EIPC303 - ANALOG ELECTRONIC CIRCUITS

Regulations - 2020

Duration: 3 Hours | Max. Marks: 100

PART - A (MCQ) (10 × 1 = 10 Marks)

Answer ALL Questions

		Marks	K – Level	CO
1.	Diffusion capacitance in a diode is dominant under which condition? (a) Reverse bias (b) Forward bias (c) Zero bias (d) Breakdown region	1	K1	CO1
2.	In CE configuration, the input is applied between: (a) Base–Emitter (b) Collector–Base (c) Collector–Emitter (d) None	1	K2	CO1
3.	The drain current in a JFET depends primarily on: (a) Gate current (b) Channel resistance (c) VGS (d) Temperature	1	K1	CO2
4.	Class B amplifiers conduct for: (a) 90° (b) 180° (c) 270° (d) 360°	1	K2	CO2
5.	Which feedback reduces distortion? (a) Positive (b) Negative (c) Series only (d) Shunt only	1	K1	CO3
6.	Wien-bridge oscillator provides: (a) 0° shift (b) 90° shift (c) 180° shift (d) 360° shift	1	K2	CO3
7.	The input impedance of an ideal op-amp is: (a) Zero (b) Finite (c) Very high (d) 1 Ω	1	K1	CO4
8.	A comparator compares: (a) Two currents (b) Two voltages (c) Voltage & current (d) None	1	K2	CO4
9.	555 Timer in astable mode generates: (a) Single pulse (b) Square wave (c) Ramp (d) Sine wave	1	K1	CO5
10.	LM317 is a: (a) Fixed regulator (b) Switching regulator (c) Variable regulator (d) Zener regulator	1	K2	CO5

PART - B (12 × 2 = 24 Marks)

Answer ALL Questions

		Marks	K – Level	CO
11.	Draw the label the V–I characteristics of a PN junction diode.	2	K2	CO1
12.	State any two advantages of voltage divider bias.	2	K1	CO1
13.	Give the equation for drain current in a JFET.	2	K2	CO2
14.	Write any two features of MOSFET.	2	K1	CO2
15.	State Barkhausen criterion for oscillation.	2	K2	CO3
16.	Mention two advantages of negative feedback.	2	K1	CO3
17.	Write the ideal op-amp characteristics.	2	K1	CO4
18.	Differentiate integrator from differentiator.	2	K2	CO4
19.	Recall the applications of 555 timer.	2	K1	CO5
20.	Mention two features of IC723 regulator.	2	K1	CO5
21.	Define crossover distortion.	2	K1	CO3
22.	Illustrate about slew rate.	2	K2	CO4

PART - C (6 × 11 = 66 Marks)

Answer ALL Questions

23.	a)	Explain Zener diode as voltage regulator with neat diagram.	*11*	*K2*	*CO1*
		OR			
	b)	Discuss BJT configurations with equations.	*11*	*K2*	*CO1*
24.	a)	Explain the working of a MOSFET amplifier with AC equivalent circuit.	*11*	*K2*	*CO2*
		OR			
	b)	Summarize class AB power amplifier with its crossover distortion.	*11*	*K2*	*CO2*
25.	a)	Outline RC phase shift oscillator with derivation for frequency of oscillation.	*11*	*K2*	*CO3*
		OR			
	b)	Rephrase the effect of negative feedback on gain, bandwidth and distortion w.r.t. any one LC phase shift oscillator.	*11*	*K2*	*CO3*
26.	a)	Interpret instrumentation amplifier with neat diagram.	*11*	*K2*	*CO4*
		OR			
	b)	Explain astable multivibrator using op-amp.	*11*	*K2*	*CO4*
27.	a)	Relate working of 555 timer in monostable mode.	*11*	*K2*	*CO5*
		OR			
	b)	Demonstrate the operation of LM317 adjustable voltage regulator.	*11*	*K2*	*CO5*
28.	a)	Extend the design of op-amp based peak detector.	*11*	*K2*	*CO4*
		OR			
	b)	With neat diagram explain sample and hold circuit.	*11*	*K2*	*CO4*