Reg. No.												

Question Paper Code	12674

B.E. / B.Tech. - DEGREE EXAMINATIONS, APRIL / MAY 2024

Fourth Semester

Electronics and Communication Engineering

20ECPW401 - ELECTRONIC CIRCUITS WITH LABORATORY

Regulations - 2020

Duration: 3 Hours | Max. Marks: 100

PART - A (10 × 2 = 20 Marks)

Answer ALL Questions

		Marks	K – Level	CO
1.	Why is the operating point selected at the Centre of the active region?	2	K2	CO1
2.	Predict the collector and base current for the given specifications h_{fe} = 80, $V_{BE(ON)}$ = 0.7V, R_c = 5 K, R_b= 10 K, V_{cc} = 5 V.	2	K1	CO1
3.	Infer why CE amplifiers are better than CC & CB amplifiers.	2	K1	CO2
4.	Trace the small signal equivalent circuit of Common base amplifier using h parameter model.	2	K2	CO2
5.	State Barkhausen Criterion for oscillation.	2	K1	CO3
6.	The feedback amplifier of an open loop gain 600 and Feedback Factor β=0.01.Find the Closed loop gain.	2	K2	CO3
7.	Summarize the effect of cascading n stages of identical single tuned amplifiers on bandwidth.	2	K2	CO4
8.	Infer the need for neutralization in tuned amplifier.	2	K2	CO4
9.	Differentiate between the voltage and power amplifier.	2	K2	CO6
10.	List out the performance measures of power amplifiers.	2	K1	CO6

PART - B (5 × 13 = 65 Marks)

Answer ALL Questions

			Marks	K – Level	CO
11.	a)	Construct a voltage divider bias circuit and derive its stability factor and also give reasons why it is advantageous than fixed bias circuit.	13	K3	CO1
		OR			
	b)	Trace the DC load line of emitter biasing circuit and give the relationship between S , S' and S''.	13	K2	CO1
12.	a)	Draw the Common emitter amplifier and derive expressions for voltage gain, current gain, input impedance, and output impedance using h parameter model.	13	K2	CO2
		OR			
	b)	Explain the emitter coupled differential amplifier with neat diagram & Derive expression for CMRR.	13	K2	CO2

13.	a)	Derive the expression for frequency of oscillations for RC phase shift Oscillator.	*13*	*K2*	*CO3*
		OR			
	b)	Design a Colpitts oscillator with capacitance C_1 = 100 pF and C_2 = 7500 pF.The inductance is variable. Determine the range of inductance values, if the frequency of oscillation is to vary between 950 kHz and 2050 kHz.	*13*	*K3*	*CO3*
14.	a)	Explain capacitance coupled single tuned amplifier circuit and derive the expressions for its important parameters.	*13*	*K3*	*CO4*
		OR			
	b)	Illustrate the stability of tuned amplifiers and mention the need of neutralization.	*13*	*K2*	*CO4*
15.	a)	Describe the transfer characteristic, signal waveforms, power dissipation, and power conversion efficiency of Class A amplifiers.	*13*	*K2*	*CO6*
		OR			
	b)	Explain the working of Class B Push pull amplifiers with neat diagrams. Also derive its efficiency.	*13*	*K2*	*CO6*

PART - C (1× 15 = 15 Marks)

16.	a)	Illustrate the function of emitter coupled monostable Multivibrator and triggering methods for monostable multivibrator,	*15*	*K2*	*CO5*
		OR			
	b)	Illustrate the triggering methods for a bistable multivibrator and explain it by necessary diagrams.	*15*	*K2*	*CO3*