Code No.: (R22EC404PC) | R22 | H.T.No. | | | 8 | R | | | | | |

CMR ENGINEERING COLLEGE: : HYDERABAD
UGC AUTONOMOUS
II–B.TECH–II–Semester End Examinations (Supply) -December- 2025
ELECTRONIC CIRCUIT ANALYSIS
(ECE)

[Time: 3 Hours] **[Max. Marks: 60]**

Note: This question paper contains two parts A and B.
Part A is compulsory which carries 10 marks. Answer all questions in Part A.
Part B consists of 5 Units. Answer any one full question from each unit. Each question carries 10 marks and may have a, b, c as sub questions.

PART-A **(10 Marks)**

1.	a)	Draw the circuit diagram of Darlington Pair.	[1M]
	b)	Classify different types of amplifiers.	[1M]
	c)	What are the different types of Feedback Amplifiers?	[1M]
	d)	What is effect of negative feedback on amplifier gain?	[1M]
	e)	State Barkhausen criterion of oscillator.	[1M]
	f)	Classify different types of oscillator	[1M]
	g)	What is mean by crossover distortion?	[1M]
	h)	What are the limitations of Single tuned amplifier?	[1M]
	i)	Define multivibrator.	[1M]
	j)	What are the applications of Schmitt trigger?	[1M]

PART-B **(50 Marks)**

2.	a)	Derive the A_I, A_v for two stages RC coupled amplifier and draw its frequency response.	[7M]
	b)	Draw the circuit diagram of Direct Coupled Amplifier and explain its operation in detail.	[3M]
		OR	
3.	a)	Draw the hybrid-Π model of common emitter configuration and describe each component in the Π-model.	[7M]
	b)	Derive the equation for voltage gain bandwidth product for CE amplifier.	[3M]
4.		Explain the principle of negative feedback in amplifiers. Show quantitatively the effect of negative feedback on (i) Gain (ii) Stability (iii) Noise (iv) Distortion.	[10M]
		OR	
5.		Draw the block diagrams of four types of negative feedback amplifier circuits and explain the advantages and disadvantages with necessary derivations.	[10M]
6.		Starting from the description of a generalized Oscillator, derive the expression for frequency of Oscillation in a Colpitts Oscillator.	[10M]
		OR	
7.	a)	Derive the expression for frequency of oscillation of BJT RC phase-shift oscillator with necessary explanation.	[7M]
	b)	A crystal oscillator has the following parameters: L=0.33H, C=0.065pF, Cm=1.0pF and R=5.5 k ohm. i) Find the series resonant frequency. ii) Find the Q of the crystal.	[3M]

8. Explain the operation of a class A push-pull power amplifier and list out its advantages and disadvantages. [10M]

OR

9.a) Explain stagger tuned amplifier? Draw its frequency response. What applications are of stagger tuned amplifier? [7M]

b) Discuss in detail about frequency response of tuned amplifiers. [3M]

10. Draw and explain the working principle of astable multivibrator circuit derive the expression for its pulse width. [10M]

OR

11.a) Draw the circuit diagram of Bootstrap time base generator and explain its operation with necessary waveforms. [7M]

b) Compare the voltage and current time base generators with some examples. [3M]

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