Code No: R18A0405 MALLA REDDY COLLEGE OF ENGINEERING & TECHNOLOGY

(Autonomous Institution – UGC, Govt. of India)

II B.Tech II Semester Supplementary Examinations, April 2023

Analog Circuits

(ECE)											
Roll No											

Time: 3 hours

Note: This question paper Consists of 5 Sections. Answer **FIVE** Questions, Choosing ONE Question from each SECTION and each Question carries 14 marks.

*** SECTION-I

1	(a). Draw Hybrid - π model for a transistor in the CE configuration	[7M]
	(b). Briefly explain the Analysis of cascaded BJT amplifier	[7 M]

OR

2 (a).Derive the expression for the CE current gain with resistive load at high [7M] frequencies

(b).Draw the circuit diagram of RC coupled amplifier. Explain the operation and [7M] its frequency response

SECTION-II

a).Briefly explain the Effects of negative feedback on amplifiers characteristics [7M]
 b).Draw the circuit diagram of RC-phase shift oscillator using BJT and derive the expression for frequency of oscillations. [7M]

OR

4 a).Derive an expression for frequency oscillation of Hartley oscillator using [7M] transistor.

b).Show that the bandwidth increases in negative feedback amplifiers. [7M]

SECTION-III

5 Draw the push-pull class-B power amplifier and explain its operation. Show that [14M] the maximum conversion efficiency is 78.5%

OR

a). What is meant by distortion in power amplifiers, explain the given different [7M] types Of distortions
b). Draw and explain the circuit diagram of single tuned capacitive coupled [7M]

b). Draw and explain the circuit diagram of single tuned capacitive coupled [7M] amplifier with its operation in detail.

SECTION-IV

a).With the help of a neat diagram and waveforms, explain the principle of [7M] operation of monostable multivibrator.
b). Explain the transistor switching times with the help of a neat circuit diagram. [7M]

OR

8 a).Explain the working of Schmitt trigger with the help of a neat circuit diagram. [7M]
 b). Draw and explain the circuit of Astable Multivibrator with necessary waveforms

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Max. Marks: 70

SECTION-V

9 a). Mention the different types of sweep circuit. With neat circuit and waveform [7M] explain the working principle of Miller Sweep circuit. b).Derive expression for sweep slope error (e_s), displacement error(e_d) and [7M] Transmission error (e_t).

OR

a). Design Miller's Sweep circuit for the following specifications: $V_{cc}=12V$, 10 [6M] $i_c=1mA$, $h_{femin}=20$, $V_{CE(sat)}=0.3V$, $V_{BE(sat)}=0.7V$, assume sweep period $T_s=5$ msecs. Briefly describe various methods to achieve sweep linearity in time- base circuit. b). Draw the circuit of simple current time-base generator and explain its operation [**8M**] with the help of neat waveforms and necessary equations.
