

Code No: **R20A0405****MALLA REDDY COLLEGE OF ENGINEERING & TECHNOLOGY****(Autonomous Institution – UGC, Govt. of India)****II B.Tech II Semester Regular/Supplementary Examinations, July 2023****Analog Circuits****(ECE)**

Roll No									
----------------	--	--	--	--	--	--	--	--	--

Time: 3 hours**Max. Marks: 70**

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**Marks**

- | | | | |
|-----------|----------|--|-------------|
| 1 | A | Draw BJT CE amplifier and derive the expression for the hybrid π -parameters. | [7M] |
| | B | Briefly explain BJT CE amplifier and derive the expressions low frequency voltage gain A_{vl} , and high frequency voltage gain A_{vh} | [7M] |
| OR | | | |
| 2 | A | Derive the expression for the CE current gain with resistive load at high frequencies | [7M] |
| | B | Derive the expressions for higher and lower cut-off frequency of a multistage amplifier | [7M] |

SECTION-II

- | | | | |
|-----------|----------|---|-------------|
| 3 | A | Draw the circuit diagram and explain the operation of two stage RC coupled amplifier. | [7M] |
| | B | Derive the expression for current gain in Darlington pair circuit with neat sketch? | [7M] |
| OR | | | |
| 4 | A | How are multi-stage amplifiers classified depending upon the type of coupling | [7M] |
| | B | Write a note on distortions in amplifiers with neat diagram? | [7M] |

SECTION-III

- | | | | |
|-----------|----------|--|--------------|
| 5 | A | Draw the circuit diagram of Direct coupled class-A power amplifier and explains its operation. Show that the maximum conversion efficiency is 25%. | [7M] |
| | B | What is a Power Amplifier? What are the classifications of power amplifier? | [7M] |
| OR | | | |
| 6 | | Draw the circuit diagram of Direct coupled class-B push pull power amplifier and explains its operation. Show that the maximum conversion efficiency is 78.5%. | [14M] |

SECTION-IV

- | | | | |
|-----------|----------|---|-------------|
| 7 | A | With the help of a neat diagram and waveforms, explain the principle of operation of astable multivibrator. | [7M] |
| | 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 monostable Multivibrator with necessary waveforms | [7M] |

SECTION-V

- | | | | |
|-----------|----------|--|--------------|
| 9 | A | With neat sketches and necessary expressions, explain the transistor Miller time-base generator. | [7M] |
| | B | Briefly describe various methods to achieve sweep linearity in time-base circuit. | [7M] |
| OR | | | |
| 10 | | With neat sketches and necessary expressions, explain the transistor Bootstrap time-base generator and derive sweep error. | [14M] |
