

**Code No: R15A0405****MALLA REDDY COLLEGE OF ENGINEERING & TECHNOLOGY****(Autonomous Institution – UGC, Govt. of India)****II B.Tech II Semester Supplementary Examinations, April 2023****Electronic Circuit Analysis****(ECE)**

<b>Roll No</b>									
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**Time: 3 hours****Max. Marks: 75****Note:** This question paper contains two parts A and B

Part A is compulsory which carries 25 marks and Answer all questions.

Part B Consists of 5 SECTIONS (One SECTION for each UNIT). Answer FIVE Questions, Choosing ONE Question from each SECTION and each Question carries 10 marks.

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**PART-A (25 Marks)**

- 1). a Explain the importance of direct coupling scheme. Give any two examples. [2M]
- b Define cascode amplifiers and its applications [3M]
- c Explain Millers theorem. [2M]
- d Discuss gain-bandwidth product of amplifier. [3M]
- e Explain the effect of negative feed back on the bandwidth of an amplifier. [2M]
- f Derive gain of positive feedback amplifier [3M]
- g Explain briefly about heat sink [2M]
- h Discuss the applications of Class C power amplifiers. [3M]
- i Mention the type's small signal tuned amplifiers. [2M]
- j Define Q factor. [3M]

**PART-B (50 MARKS)****SECTION-I**

- 2 Discuss briefly about distortions in the Amplifier. Explain and analyse Darling ton pair. [10M]

OR

- 3 Design single stage RC coupled Amplifier of BJT. [10M]

**SECTION-II**

- 4 Sketch Hybrid -Pi model of transistor and Derive the relations of hybrid pi conductance in terms of hybrid parameters for the following terms. [10M]
- i) transconductance ii) output conductance.

OR

- 5 At  $I_C=1\text{mA}$  and  $V_{CE}=10\text{V}$ , a certain transistor data shows  $C_c=C_b'=3\text{pF}$ ,  $h_{fe}=200$  and  $\omega T=500\text{M rad/sec}$ . Calculate  $g_m$ ,  $r_b'e$ ,  $C_e=C_b'e$  and  $f_\beta$ . [10M]

**SECTION-III**

- 6 With necessary diagram, explain different feedback configurations. [10M]
- An amplifier has gain  $A=1000$  and bandwidth of  $200\text{kHz}$ . Calculate the gain and bandwidth with feedback if feedback factor  $\beta=20\%$ .

OR

- 7 Derive the expression for frequency of oscillations of RC phase shift oscillator [10M]  
using BJT and also get the magnitude condition.

**SECTION-IV**

- 8 Discuss the classification of power amplifiers. Explain Push pull class B power amplifier. [10M]

OR

- 9 With neat sketches, explain transformer coupled Class A power amplifier. [10M]

**SECTION-V**

- 10 Explain the working of single tuned amplifier with a neat diagram. Draw the frequency response of single tuned amplifier. [10M]

OR

- 11 With a neat diagram, explain working of stagger tuned amplifier with its frequency response. [10M]

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