

C.U.SHAH UNIVERSITY

Summer Examination-2018

Subject Name: Linear Electronics

Subject Code: 4TE03LNE1

Branch: B.Tech (CE)

Semester: 3

Date: 26/03/2018

Time: 02:30 To 05:30

Marks: 70

Instructions:

- (1) Use of Programmable calculator & any other electronic instrument is prohibited.
 - (2) Instructions written on main answer book are strictly to be obeyed.
 - (3) Draw neat diagrams and figures (if necessary) at right places.
 - (4) Assume suitable data if needed.
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Q-1 **Attempt the following questions** **(14)**

- a) "Transistor is a Bipolar device" justify
- b) Why has crystal oscillator high stability?
- c) What is class B amplifier?
- d) State the advantage and disadvantage of h- parameter.
- e) State the significance of Q point in amplifier.
- f) If L_1 & $L_2=10\text{mH}$ and $C=10\mu\text{F}$ then frequency of oscillation for collpitts oscillator is ...Hz.
- g) Why OP-Amp required dual power supply?
- h) Write a unit of slew rate.
- i) State the disadvantage of RC coupling methods for multistage amplifier.
- j) Draw circuit of collector to base biasing.
- k) Draw waveforms of oscillation with different criteria.
- l) Give the full forms of QFP and NM.
- m) What is CMRR?
- n) Draw block diagram of current series type feedback.

Attempt any four questions from Q-2 to Q-8

Q-2 **Attempt all questions** **(14)**

- 1 An amplifier produced 10v when input is 10mv with and operating range of frequency is 50 Hz to 1000Hz, and $\beta=40\%$ then find F_2 , F_{1f} , F_{2f} , BW_f , A , BW and A_f . **07**



2	Why transformer coupled method is preferred in power amplifier? Explain class B push pull amplifier in detail.	07
Q-3	Attempt all questions	(14)
1	Define input bias current, input offset current, positive feedback, stability, distortion.	05
2	State the limitations of LC oscillator. Explain any in detail.	07
3	Why does gain of amplifier reduces sharply at higher frequency as compared to lower frequency?	02
Q-4	Attempt all questions	(14)
1	Explain cross over distortion in power amplifier.	03
2	Draw and explain block diagram amplifier with feedback. Derive the equation of gain with feedback for negative feedback.	07
3	Give the differences between power amplifier and voltage amplifier	04
Q-5	Attempt all questions	(14)
1	State the need of biasing. Enlist various methods of biasing. Explain any one method in detail.	07
2	Explain class A amplifier with transformer load.	07
Q-6	Attempt all questions	(14)
1	State the importance of two port analysis. Explain hybrid model of BJT in detail.	07
2	Explain h-parameter analysis of CB amplifier	07
Q-7	Attempt all questions	(14)
1	Give the classification of amplifier.	05
2	Enlist the components is required for making a oscillator.	03
3	Explain RC phase shift oscillator with diagram.	06
Q-8	Attempt all questions	(14)
1	Draw symbol of Op-Amp and its equivalent circuit. State ideal characteristics of operational amplifier.	05
2	Explain Op-Amp close loop configuration.	05
3	Explain Op-Amp as a differentiator.	04

