C.U.SHAH UNIVERSITY
Winter Examination-2018

Subject Name: Linear Electronics

Subject Code: 4TE03LNE1   **Branch: B.Tech (CE)**

Semester: 3   **Date: 01/12/2018**   **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.

Q-1   **Attempt the following questions:**   **(14)**
  a) What is the use of class C amplifiers?
  b) Why a power amplifier is called large signal amplifier?
  c) What are the practical application of emitter follower?
  d) Define Cross Over Distortion.
  e) Define Oscillator.
  f) Define Q Point of transistor.
  g) What do you understand by feedback in an amplifiers?
  h) Why do we use transformer in the output stage of power amplifier?
  i) Give the difference between voltage and power amplifier.
  j) Define Barkhausen Criterion for Feedback Oscillator.
  k) Define Positive Feedback.
  l) Define CMRR.
  m) Define Slew Rate.
  n) Why an emitter follower is called so?

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

Q-2   **Attempt all questions**   **(14)**
  (a) Explain h-parameter analysis of CE amplifier
  (b) Define two port devices. Explain transistor hybrid model in detail.

Q-3   **Attempt all questions**   **(14)**
  (a) Write a note on Emitter Follower in detail.
  (b) Explain the working of Class B transformer coupled push-pull amplifier and
          derive the expression for its efficiency.

Q-4   **Attempt all questions**   **(14)**
  (a) What is biasing? State the need of it. Explain fixed bias in detail.
  (b) What is operating point? State the importance of it. Explain any one method for
          maintain it in active region with necessary figure.

Q-5   **Attempt all questions**   **(14)**
  (a)   Explain working Colpitt's Oscillator with help of circuit diagram.
  (b)   Explain Crystal oscillator in detail.

Q-6   **Attempt all questions**   **(14)**
  (a)   Show that maximum collector efficiency of class A transformer coupled power amplifier is 50%.
  (b)   Draw and explain Current Series Feedback Amplifier in detail.

Q-7   **Attempt all questions**   **(14)**
  (a)   Draw the block diagram of basic op-amp and explain the function of each block in detail.
  (b)   Derive an expression for the voltage gain of a Non-Inverting Op-Amp.

Q-8   **Attempt all questions**   **(14)**
  (a)   Explain summing amplifier using inverting configuration.
  (b)   Write short note on Hartley's Oscillator.