

May 2019
B.Tech. - V SEMESTER
Analog Integrated Circuits (E-305) , Scheme-2010

Time: 3 Hours

Max. Marks:60

- Instructions: 1. It is compulsory to answer all the questions (2 marks each) of Part -A in short.
2. Answer any four questions from Part -B in detail.
3. Different sub-parts of a question are to be attempted adjacent to each other.

PART -A

- Q1 (a) What do you understand by frequency distortion and phase distortion? (2)
(b) What are the characteristics of negative feedback? (2)
(c) Define positive feedback. (2)
(d) Which type of feedback is present in common emitter amplifier circuit? (2)
(e) What do you understand by ideal and practical op-amp? (2)
(f) What is crystal oscillator? (2)
(g) What is higher order harmonic distortion? (2)
(h) What is slew rate? (2)
(i) Draw the circuit of non-inverting amplifier. (2)
(j) What is input bias current for op-amp? (2)

PART -B

- Q2 (a) Determine the low-frequency response of an RC-coupled stage. (5)
(b) Define Tilt/Sag, how it is related to lower 3-dB frequency f_L . (5)
- Q3 (a) What are the four possible topologies of feedback amplifier, explain. (5)
(b) What is the effect of feedback on output impedance for current-shunt feedback? (5)
- Q4 Draw and explain the circuit of class-B push-pull power amplifier and derive the expression for efficiency. (10)
- Q5 (a) Draw the circuit of wien bridge oscillator and determine its frequency of oscillation. (5)
(b) Draw and explain the circuit of emitter coupled differential amplifier. (5)
- Q6 (a) Draw the circuit of antilog amplifier and explain it with necessary derivation. (5)
(b) Draw and explain the sample and hold circuit using op-amp. (5)
- Q7 Draw and explain the following circuits using op-amp (i) voltage to current converter (ii) differentiator. (10)
