

2056

B.E. (Electronics and Communication Engineering)
Fourth Semester
EC-406: Analog Electronic Circuits

Time allowed: 3 Hours

Max. Marks: 50

NOTE: Attempt five questions in all, including Question No. 1 which is compulsory and selecting two questions from each Unit.

x-x-x

1. Attempt the following:-

- a. Differentiate between a three stage common emitter amplifier and a differential amplifier.
- b. Differentiate between common mode gain and differential mode gain of an operational amplifier. What is CMRR?
- c. Discuss the merits and demerits of a clapp oscillator.
- d. Explain the concept of virtual ground. How it is different to the actual or real ground
- e. Design a two voltage subtractor using a non inverting operation amplifier only. (5x2)

UNIT - I

2.
 - a. Explain the effect of multistaging of transistors on the gain and the bandwidth of the overall circuit.
 - b. Derive the miller theorem in the electronic circuits.
 - c. Discuss the advantages of the common collector and common base configurations of a transistor. (4,3,3)
3.
 - a. Derive the expression for a negative feedback amplifier. What is the effect of negative feedback on the noise and impedance of an amplifier?
 - b. What is boot strapping in electronic circuits? (7,3)

P.T.O.

(2)

4. Write notes on:-

- a. Working of a dual input and dual output differential amplifier
- b. Compensation in operational amplifiers (5,5)

UNIT - II

5. a. Explain the working of a circuit generating an anti-logarithmic operation.

- b. Design a circuit which can evaluate the expression $0.8x(0.2v_1/5.3v_2)^{4.2}$ where v_1, v_2 are two input analog inputs. (5,5)

6. a. Explain the working of a integration operation.

- b. Design a circuit to evaluate the $d/dt (2.85v_1+1.25v_2)^{-19/21}$ where v_1, v_2 are two input analog inputs. (4,6)

7. Write notes on:

- a. Clamper circuits
- b. Crystal oscillator (5,5)