

2014  
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.

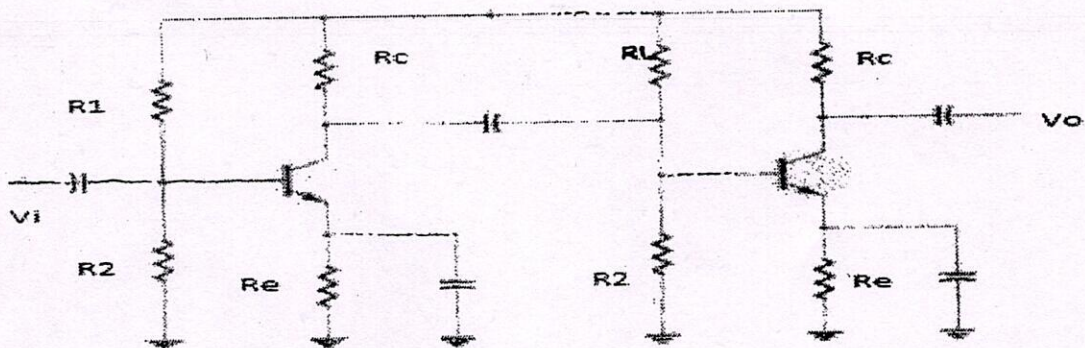
x-x-x

I. Attempt the following:-

- Explain how two amplifiers can be coupled together?
- Derive and state the Miller theorem and give its two applications.
- Differentiate between a differential amplifier and a cascade amplifier.
- Differentiate between an integrator and a differentiator and state their applications.
- Differentiate between a clipper and a clamper. (5x2)

**UNIT - I**

II. For a figure given below, using h parameter model, calculate the output voltage  $V_o$  for a  $V_i = 5\mu\text{V}$ . The values of  $R_1 = R_c = 10\text{ k}\Omega$ ,  $R_2 = R_e = 2\text{ k}\Omega$ . Both the transistors are identical and  $h_{fe} = 50$ ,  $h_{ie} = 1.0\text{ k}\Omega$ ,  $h_{re} = 1.0 \times 10^{-4}$ , and  $h_{oe} = 100\ \mu\text{mhos}$ .



(10)

- III. a) Why feedback is given in amplifiers? Compute the gain of an amplifier when a negative feedback is given. What is the effect of on the high frequency performance of a negative feedback amplifier?
- b) Differentiate between a voltage shunt feedback and voltage series feedback. (6,4)

P.T.O.

(2)

IV. Write notes on:-

- a) Current mirror circuit
- b) Characteristics of an operational amplifier (5,5)

**UNIT - II**

V. a) Realize the 2 input adder and 2 input multiplier using operation amplifiers.

b) Solve Schrodinger's wave equation for electrons using an operation amplifier. (6,4)

VI. a) Explain why oscillations take place in an electronic circuit?

b) Compute the oscillation frequency in phase shift oscillator. (5,5)

VII. Write notes on:-

a) Op amp clampers

b) Caur filter (5,5)

x-x-x