Exam.Code:0928
Sub. Code: 33656

2055

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. I which is compulsory and selecting two questions from each Unit.*

x-x-x

I. Attempt the following:-

a) Differentiate between a two stage and a three stage common emitter amplifier. Explain the concept of DC load line and AC load line in a single stage 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 hartley oscillator.

d) Explain the concept of virtual ground. How it is different to the actual or real ground?

e) What is a current mirror? Give two applications. (5x2)

UNIT - I

II. a) Explain why the transistor gain varies with high frequency and low frequency in an amplifier?

b) Explain the transformer coupling in cascading two amplifiers?

c) Explain why the darlington pair does not produce any gain? What are its applications? (4,3,3)

III. a) Explain why negative feedback is given in an amplifier? Derive the expression for a negative feedback amplifier. What is the effect of negative feedback on the gain and impedance of an amplifier?

b) Explain miller theorem with an example and compare it with thevenin theorem. (5,5)

P.T.O.

IV. Write notes on:-

a) Differential amplifier and single stage amplifier difference.

b) Give four characteristics of an ideal operational amplifier.

c) Current mirror load differential amplifier. (5,1,4)

UNIT - II

V. a) Explain the working of a logarithmic operation using an operational amplifier.

b) Design a circuit which can evaluate the expression $(v_1/v_2)^2$, where v_1 , v_2 are two input analog inputs. (5,5)

VI. a) Explain the working of a differentiation operation using an operational amplifier.

b) Design a circuit which can evaluate the expression with respect to time, $\int(v1 - v2)/(v1+v2)$ where v_1 , v_2 are two input analog inputs. (4,3,3)

VII. Write notes on:-

a) Clippers and their two applications

b) Crystal oscillator

c) Low pass op amp filter (3,3,4)

x-x-x