

Exam.Code:0933

Sub. Code: 6972

1128

B.E. (Electrical and Electronics Engineering)

Third Semester

EE-307: Analog and Digital Electronics

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:-

- State the condition for occurrence of thermal runaway in transistors?
- Design a tuned circuit for Hartley and Colpitts oscillator.
- Construct 16x1 multiplexer using 8x1 and 4x1 multiplexers.
- What is toggling in JK flip flop and how it can be removed?
- What are the advantages of R-2R DAC over weighted resistor DAC? (5x2)

UNIT - I

II. a) Draw a h-parameter model for a CE BJT amplifier. Determine all the h parameters and calculate the input and the output impedances in the circuit?

b) Find the transistor currents if it has $\beta=100$, $R_c=3K\Omega$, $R_B=200K\Omega$, $V_{BE}=5V$ and $V_{CB}=10V$. (7,3)

III. a) How negative feedback amplifiers improves the stability in gain and its input resistance? Justify.

b) A feedback amplifier has two stages of amplification. Each amplifier stage has a gain of 100. What should be the gain of feedback amplifier if overall gain of system is 100? (7,3)

IV. a) The input of an op amp as an integrator is 10mV, 1KHz. Find the output voltage if $R=2000K$ and $C = 5\mu F$. Also plot its input and the output waves with its circuit diagram.

b) Give the characteristics of ideal and practical op amps? (7,3)

P.T.O.

(2)

UNIT - II

- V. a) Simplify the following expression:
 $Y = \sum M(1, 2, 4, 5, 7, 8, 11, 13)$ using K maps?
b) How a clocked flip flop is different from unclocked flip flop? State. (7,3)
- VI. a) Calculate and design the output voltage for a 4-bit weighted resistor DAC having input as 1110.
b) Give the characteristics of converters (ADC and DAC). (7,3)
- VII. Write short notes on any two of the following:-
a) Op amp as an adder
b) Active filters
c) Registers (2x5)

x-x-x