LAST MOMENT TUITIONS

Electronic Circuits and Communication Fundamentals

JUN 19

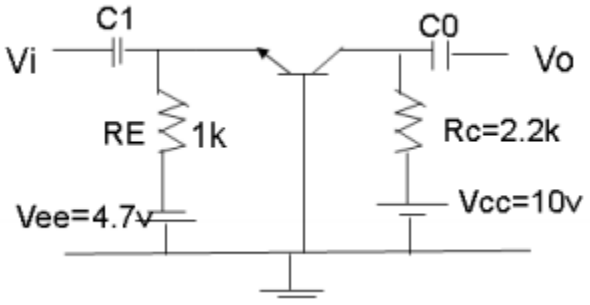
Computer Engineering (Semester 3)

Total marks: 80
Total time: 3 Hours

INSTRUCTIONS
(1) Question 1 is compulsory.
*(2) Attempt any **three** from the remaining questions.*
(3) Draw neat diagrams wherever necessary.

1.a. Explain with diagram Input and output characteristic of Common base configuration. (5 marks)
1.b. List the ideal Characteristic of op amp. (5 marks)
1.c. Calculate the percent power saving an SSB signal if the AM wave is modulated to a depth of (a) 100 % and (b) 50% (5 marks)
1.d. Define the term Information theory. Give definitions for Information Rate and Entropy. (5 marks)

2.a. For the circuit shown in Figure below calculate V_{CB},I_E and I_B if β=100β=100



(10 marks)
2.b. Explain how op-amp can be used as a differentiator. (10 marks)

3.a. What do you mean by Zero Crossing detector? Explain with diagram (5 marks)
3.b. Write Short note on generation of FMFM by Armstrong method. (5 marks)
3.c. Use op-amp IC741 to realize the expression V0=5V1+2V2−3V3V0=5V1+2V2−3V3 (5 marks)
3.d. What is a Nyquist criteria? What is its significance. (5 marks)

4.a. Explain Delta Modulation with neat diagram and waveforms after each block. (10 marks)
4.b. An AM signal appears a 50ΩΩ load and has the following
equation v(t)=12(1+sin12.566×103t)sin18.85×108t volts
Sketch the envelope of this signal in time domain
Calculate modulation index, sideband frequencies,
total power and bandwidth (5 marks)

5.a. Compare PAM,PWM and PPM pulse modulation techniques. (10 marks)
5.b. Explain the generation of DSBSC using Balance modulator. (10 marks)

6.a. What do you mean by multiplexing? Explain TDM (10 marks)
6.b. List down various parameters of op-amp with their practical values
for IC 741 .Explain common mode gain and differential mode gain. (10 marks)