

SIR C.R. REDDY COLLEGE  
OF ENGG LIBRARY, ELURU

[06 - 3111]

III/IV B.E. DEGREE EXAMINATION.

First Semester

Electrical and Electronics Engineering

LINEAR ICs AND APPLICATIONS

(Common for EEE and ECE)

(Effective from the admitted batch of 2004-2005)

Time : Three hours

Maximum : 70 marks

Question No.1 is compulsory.

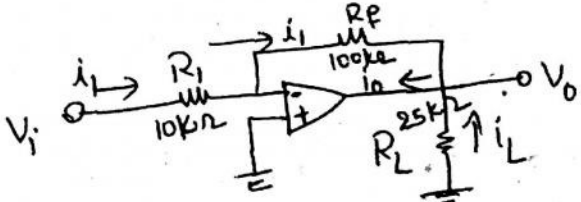
Answer any FOUR from the remaining questions.

All questions carry equal marks.

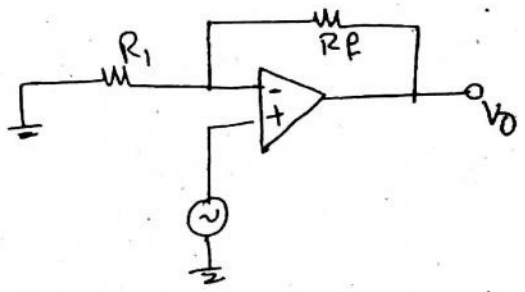
1. (a) Define Common mode rejection ratio.
- (b) What is the input impedance of a non-inverting Op-amplifier?
- (c) What are the advantage of active filters over Passive filters?
- (d) Draw the functional diagram of a 555 timer.
- (e) List the basic building blocks of a PLL.
- (f) How is the slew rate measured?
- (g) Draw the CKT OP VCO.

2

2. (a) Explain with a neat circuit diagram, how is CMRR of an Op-amp measured.
- (b) In Fig (1)  $R_1 = 10\text{ k}\Omega$ ,  $R_p = 100\text{ k}\Omega$ ,  $V_i = 1\text{ V}$ . A load of  $25\text{ k}\Omega$  is connected to the o/p terminal calculate (i)  $i_i$  (ii)  $V_o$  (iii)  $i_L$  and Total current  $i_o$  in to the output pin.



3. (a) Derive the voltage gain for the non-inverting amplifier shown in the fig below.



- (b) Draw and explain the logarithmic amplifier with neat sketch.

4. (a) Draw the circuit of OP-amplifier Wein bridge oscillator and derive an expression for its frequency of oscillation.
- (b) Draw and explain the operation of monostable multivibrator.

5. (a) Explain the current limiting feature of 723 regulator.
- (b) Draw and explain the functional diagram of a 555 timer.

6. Write short notes on

- (a) PLL  
(b) VCO

3  
Oct-16

7. (a) Draw the first order low pass Butter worth filter and analyse the same by deriving the gain and phase angle equation.
- (b) Draw the circuit of a frequency to voltage converter and explain.

8. Write short notes on
- (a) Sample and hold circuit  
(b) Square wave generator.

SIR C.R. RAJADY COLLEGE  
OF ENGG LIBRARY, ELURI

(5)

[06 - 3111]

EEE

III/IV B.E. DEGREE EXAMINATION.

First Semester

Electrical and Electronics Engineering

LINEAR ICs AND APPLICATIONS

(Common for EEE, ECE, EIE and Dual Degree  
Programme in ECE and EEE)

(Effective from the admitted batch of 2004-2005)

Time : Three hours

Maximum : 70 marks

First question is compulsory.

Answer any FOUR from the remaining.

All questions carry equal marks. ( $7 \times 2 = 14$ )

1. (a) Define input offset voltage and output offset voltage.
- (b) Explain the need for frequency compensation in OPAMP.
- (c) Draw the functional block diagram of IC1496 balanced modulator and mention its features.
- (d) What are the advantages of switched capacitor filters?

(2)

- (e) Draw the circuit of logarithmic amplifier using OPAMP.
- (f) Give the applications of IC 565PLL.
- (g) Explain briefly about all pass filter.
2. (a) Define and explain various op-amp parameters.
- (b) Explain in detail about measurement of op-amp parameters
3. (a) With a neat circuit diagram and necessary derivations explain op-amp as instrumentation amplifier.
- (b) Draw the circuit diagram of op-amp as integrator and explain its operation with necessary analysis.
4. (a) With a neat circuit diagram and relevant waveforms, explain the operation of monostable multivibrator using op-amp.
- (b) Design a square wave generator with free running frequency of 1 KHz using op-amp with supply voltage  $\pm 15V$ .
5. (a) Draw the 555 timer circuit in astable mode to get Output waveform with 50% duty cycle.
- (b) Draw and explain the internal schematic of 556 IC.
6. (a) Explain pin configuration of 565 IC.
- (b) Explain one application of PLL as frequency translator.
7. (a) Explain the first order band pass filter and band reject filter.
- (b) Draw the circuit of switched capacitor filter. Mention its important feature and give its practical limitations
8. Explain in detail about.
- (a) Quadrature Oscillator
- (b) Sample and Hold circuits.

2  
2015

SIR C.R. REDDY COLLEGE  
OF ENCG LIBRARY, ELURU

[06-3111]

III/IV B.E. DEGREE EXAMINATION.

First Semester

Electrical and Electronics Engineering

LINEAR ICs AND APPLICATIONS

(Common with ECE, EIE, Dual Degree Programs in  
ECE and EEE)

(Effective from the admitted batch of 2004-2005)

Time : Three hours

Maximum : 70 marks

Question No. 1 is compulsory.

Answer any FOUR from the remaining.

All questions carry equal marks.

1. (a) Differentiate between Monolithic and hybrid integrated circuits.
- (b) If 741 IC is configured as an 12 V converter, what is the lowest value of current that may be measured?
- (c) What is a switching regulator? List four different types of voltage regulators.

②

- (d) List one application of PLL and briefly describe its role in that application.
  - (e) What is an all pass filter? Where and why it is needed?
  - (f) Define a filter and classify them.
  - (g) What is the offset minimising resistor ROM?
2. (a) Explain non-inverting amplifier in detail with neat diagram.
- (b) The output voltage of a certain op-amp circuit changes by 20V in  $4\mu s$ . What is its slew rate?
- (c) Explain the block diagram of typical op-amp.
3. Explain summing scaling and averaging amplifiers in inverting configuration.
4. Discuss about instrumentation amplifier using transducer bridge.
5. (a) Explain square wave generator using op-amp
- (b) Explain about logarithmic amplifier.
6. (a) Explain the operation of 555 timer as a monostable multivibrator.
- (b) Explain 565 PLL in detail.
7. (a) Design a second order low pass filter at a high cutoff frequency of 1 kHz.
- (b) Explain quadrature oscillator in detail.

8. Write short notes on :
- (a) Switched capacitance filters
  - (b) IC 496 Balanced modulator
  - (c) 556 function generator

2014