Code No: RR311001	RR	SET-1

B. Tech III Year I Semester Examinations, December-2011

LINEAR AND DIGITAL IC APPLICATIONS

(COMMON TO ELECTRONICS AND INSTRUMENTATION ENGINEERING, MECHANICAL ENGINEERING(MECHATRONICS), ELECTRONICS AND TELEMATICS ENGINEERING)

Time: 3 hours **Max. Marks: 80**

Answer any five questions

All questions carry equal marks

1.a) Compare the ideal and practical characteristics of an op-amp.
b) Explain the miller frequency compensation technique employed in op-amp.
c) Explain the significance of Virtual ground in an op-amp. [16]

2.a) An IC op-amp 741 is used as an inverting amplifier with a gain of 100. The voltage gain Vs Frequency characteristic is flat upto 12KHZ. Find the maximum peak-to-peak input signal that can be fed without causing any distortion to the output?
b) Explain and draw the output waveforms of the ideal integrator circuit when the input is square-wave.
c) Draw the circuit diagram of an logarithmic amplifier using op-amps and explain its operation. [16]

3.a) What is timer IC555? Draw the internal structure of IC555 Timer.
b) List the applications of 555 timer. [8+8]

4.a) Explain the method of boosting the current of a three terminal voltage regulator.
b) Draw the block diagram of PLL and explain the function of each block. [8+8]

5.a) Define an all-pass filter How can it be justifiably called a phase shift circuit?
b) Design a narrowband bandpass filter using op-amp. The resonant frequency is 100Hz and Q=2. Assume C=0.1 μF. [8+8]

6.a) What is tristate logic? Give some examples.
b) How to interface the TTL logic gates to the CMOS logic gates.
c) Draw the basic DTL Gate and explain its operation. [16]

7.a) What are the limitations of weighted resistor type D/A converter?
b) What do you mean by quantization error in an A/D converter/?
c) With neat block diagram, explain successive approximation type A/D converter in detail. [16]

8. Write a short notes on the following
a) IC1496
b) VCSV. [16]

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Code No: RR311001	RR	SET-2

B. Tech III Year I Semester Examinations, December-2011
LINEAR AND DIGITAL IC APPLICATIONS
(COMMON TO ELECTRONICS AND INSTRUMENTATION ENGINEERING, MECHANICAL ENGINEERING(MECHATRONICS), ELECTRONICS AND TELEMATICS ENGINEERING)

Time: 3 hours **Max. Marks: 80**

Answer any five questions
All questions carry equal marks

1.a) What is timer IC555? Draw the internal structure of IC555 Timer.
b) List the applications of 555 timer. [8+8]

2.a) Explain the method of boosting the current of a three terminal voltage regulator.
b) Draw the block diagram of PLL and explain the function of each block. [8+8]

3.a) Define an all-pass filter How can it be justifiably called a phase shift circuit?
b) Design a narrowband bandpass filter using op-amp. The resonant frequency is 100Hz and Q=2. Assume C=0.1 μF. [8+8]

4.a) What is tristate logic? Give some examples.
b) How to interface the TTL logic gates to the CMOS logic gates.
c) Draw the basic DTL Gate and explain its operation. [16]

5.a) What are the limitations of weighted resistor type D/A converter?
b) What do you mean by quantization error in an A/D converter/?
c) With neat block diagram, explain successive approximation type A/D converter in detail. [16]

6. Write a short notes on the following
a) IC1496
b) VCSV. [16]

7.a) Compare the ideal and practical characteristics of an op-amp.
b) Explain the miller frequency compensation technique employed in op-amp.
c) Explain the significance of Virtual ground in an op-amp. [16]

8.a) An IC op-amp 741 is used as an inverting amplifier with a gain of 100. The voltage gain Vs Frequency characteristic is flat upto 12KHZ. Find the maximum peak-to-peak input signal that can be fed without causing any distortion to the output?
b) Explain and draw the output waveforms of the ideal integrator circuit when the input is square-wave.
c) Draw the circuit diagram of an logarithmic amplifier using op-amps and explain its operation. [16]

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Code No: RR311001	RR	SET-3

B. Tech III Year I Semester Examinations, December-2011

LINEAR AND DIGITAL IC APPLICATIONS

(COMMON TO ELECTRONICS AND INSTRUMENTATION ENGINEERING, MECHANICAL ENGINEERING(MECHATRONICS), ELECTRONICS AND TELEMATICS ENGINEERING)

Time: 3 hours **Max. Marks: 80**

Answer any five questions

All questions carry equal marks

1.a) Define an all-pass filter How can it be justifiably called a phase shift circuit?
b) Design a narrowband bandpass filter using op-amp. The resonant frequency is 100Hz and Q=2. Assume C=0.1 μF. [8+8]

2.a) What is tristate logic? Give some examples.
b) How to interface the TTL logic gates to the CMOS logic gates.
c) Draw the basic DTL Gate and explain its operation. [16]

3.a) What are the limitations of weighted resistor type D/A converter?
b) What do you mean by quantization error in an A/D converter/?
c) With neat block diagram, explain successive approximation type A/D converter in detail. [16]

4. Write a short notes on the following
a) IC1496
b) VCSV. [16]

5.a) Compare the ideal and practical characteristics of an op-amp.
b) Explain the miller frequency compensation technique employed in op-amp.
c) Explain the significance of Virtual ground in an op-amp. [16]

6.a) An IC op-amp 741 is used as an inverting amplifier with a gain of 100. The voltage gain Vs Frequency characteristic is flat upto 12KHZ. Find the maximum peak-to-peak input signal that can be fed without causing any distortion to the output?
b) Explain and draw the output waveforms of the ideal integrator circuit when the input is square-wave.
c) Draw the circuit diagram of an logarithmic amplifier using op-amps and explain its operation. [16]

7.a) What is timer IC555? Draw the internal structure of IC555 Timer.
b) List the applications of 555 timer. [8+8]

8.a) Explain the method of boosting the current of a three terminal voltage regulator.
b) Draw the block diagram of PLL and explain the function of each block. [8+8]

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Code No: RR311001 | RR | SET-4

B. Tech III Year I Semester Examinations, December-2011
LINEAR AND DIGITAL IC APPLICATIONS
(COMMON TO ELECTRONICS AND INSTRUMENTATION ENGINEERING, MECHANICAL ENGINEERING(MECHATRONICS), ELECTRONICS AND TELEMATICS ENGINEERING)

Time: 3 hours **Max. Marks: 80**

Answer any five questions
All questions carry equal marks

1.a) What are the limitations of weighted resistor type D/A converter?
b) What do you mean by quantization error in an A/D converter/?
c) With neat block diagram, explain successive approximation type A/D converter in detail. [16]

2. Write a short notes on the following
a) IC1496
b) VCSV. [16]

3.a) Compare the ideal and practical characteristics of an op-amp.
b) Explain the miller frequency compensation technique employed in op-amp.
c) Explain the significance of Virtual ground in an op-amp. [16]

4.a) An IC op-amp 741 is used as an inverting amplifier with a gain of 100. The voltage gain Vs Frequency characteristic is flat upto 12KHZ. Find the maximum peak-to-peak input signal that can be fed without causing any distortion to the output?
b) Explain and draw the output waveforms of the ideal integrator circuit when the input is square-wave.
c) Draw the circuit diagram of an logarithmic amplifier using op-amps and explain its operation. [16]

5.a) What is timer IC555? Draw the internal structure of IC555 Timer.
b) List the applications of 555 timer. [8+8]

6.a) Explain the method of boosting the current of a three terminal voltage regulator.
b) Draw the block diagram of PLL and explain the function of each block. [8+8]

7.a) Define an all-pass filter How can it be justifiably called a phase shift circuit?
b) Design a narrowband bandpass filter using op-amp. The resonant frequency is 100Hz and Q=2. Assume C=0.1 μF. [8+8]

8.a) What is tristate logic? Give some examples.
b) How to interface the TTL logic gates to the CMOS logic gates.
c) Draw the basic DTL Gate and explain its operation. [16]

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