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Question Paper Code: 43502

B.E. / B.Tech. DEGREE EXAMINATION, DEC 2020

Third Semester

Electronics and Instrumentation Engineering

14UEI302 - LINEAR INTEGRATED CIRCUITS AND APPLICATIONS

(Regulation 2014)

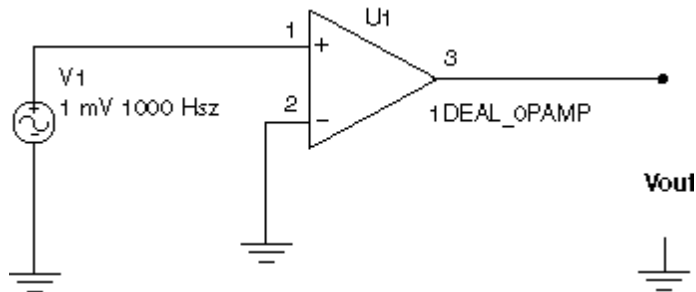
Duration: One hour

Maximum: 30 Marks

PART A - (6 x 1 = 6 Marks)

(Answer any six of the following questions)

- An ideal operational amplifier has
 - infinite output impedance
 - zero input impedance
 - infinite bandwidth
 - all of the above
- Input impedance of an inverting amplifier is approximately equal to
 - R_i
 - $R_f + R_i$
 - ∞
 - $R_f - R_i$
- Evaluate the output waveform of the circuit?



- sine wave
- square wave
- sawtooth wave
- triangle wave

4. If the gain of a closed-loop inverting amplifier is 3.9, with an input resistor value of 1.6 *kilo ohms*, discriminate the value of feedback resistor?
- (a) 6240 *ohms* (b) 2.4 *kilo ohms* (c) 410 *ohms* (d) 0.62 *kilo ohms*
5. What is the function of a ladder network?
- (a) Changing an analog signal to a digital (b) Changing a linear signal to a digital
(c) Changing a digital signal to an analog (d) None of the above
6. Evaluate the maximum conversion time of a clock rate of 1 *MHz* operating a 10-stage counter in an ADC.
- (a) 1.024 *s* (b) 102.3 *ms* (c) 1.024 *ms* (d) 10.24 *ms*
7. In a PLL, to obtain lock, the signal frequency must
- (a) come within the lock range
(b) come within the capture range
(c) be less than the capture frequency
(d) be greater than the capture frequency
8. An astable multivibrator is also known as a
- (a) one-shot multivibrator (b) free-running multivibrator
(c) bistable multivibrator (d) monostable multivibrator
9. What is (are) the principal area(s) of application for isolation amplifiers?
- (a) medical (b) power plant (c) automation (d) all of the above
10. Which of the following circuits is (are) linear/digital ICs?
- (a) Comparators (b) Timers
(c) Voltage-controlled oscillators (d) All of the above

PART – B (3 x 8= 24 Marks)

(Answer any three of the following questions)

11. Explain in detail about Silicon wafer preparation and Photolithography. (8)
12. Explain the frequency compensation techniques of OP-AMP. (8)
13. Explain the operation of Schmitt trigger. (8)

14. What is 555 timer? What are the features of 555 timer? Explain the Monostable mode in detail. (8)
15. Draw and explain the functional block diagram of a 723 voltage regulator and how this IC can be used as High voltage regulator. (8)