

B.E. DEGREE EXAMINATIONS: APRIL / MAY 2010

Sixth Semester

ELECTRICAL AND ELECTRONICS ENGINEERING

U07EE604: Linear Integrated Circuits

Time: Three Hours

Maximum Marks: 100

Answer ALL the Questions:-

PART A (10 x 1 = 10 Marks)

1. Thin film deposition is achieved by
A) Vapour deposition B) Tanning C) Spray coating D) Impregnation
2. IC's are generally not available in the following packages.
A) Hockey-puck B) TO-5 glass metal C) Ceramic D) Dual-in-line
3. In an ideal Op-Amp
A) Open loop voltage gain = 0, Input impedance = 0
B) Input impedance = ∞ , output impedance = 0
C) Output impedance = 0, bandwidth = 0
D) Open loop voltage gain = ∞ , bandwidth = ∞
4. A differential amplifier has a differential gain of 20,000. The common mode gain is given by
A) 1 B) 2 C) $\frac{1}{2}$ D) 0
5. A clamper
A) Adds AC level to the o/p voltage. B) Adds Ac spike to the o/p voltage.
C) Adds DC level to the o/p voltage. D) Samples & holds the o/p voltages.
6. Peak detectors find applications in
A) Level translators B) Peak current protection
C) Test & measuring equipment D) Square wave generators
7. Which of the following is not an integral part of PLL?
A) Phase detector B) Low-pass filter
C) Voltage controlled oscillator D) High-pass filter
8. The Voltage controlled oscillator generates
A) An output current inversely proportional to the input voltage
B) An output voltage inversely proportional to the output frequency
C) An output frequency directly proportional to the characteristic frequency
D) An output frequency directly proportional to the input voltage

9. The LM 380 finds frequent use as
A) Power amplifier B) Schmitt trigger C) Square wave generator D) Current source
10. The LM 317 is commonly used as a
A) Voltage regulator B) Audio amplifier C) Isolation amplifier D) Opto coupler

PART B (10 x 2 = 20 Marks)

11. Describe epitaxial growth.
12. Describe the various packaging configurations of a chip.
13. List out the characteristics of a practical Op-Amp.
14. Describe the differential amplifier.
15. Draw the Op-Amp basic comparator and briefly explain its working.
16. How is an Op-Amp used as I to V converter?
17. Explain the transfer characteristics of PLL.
18. List out the various applications of PLL.
19. Classify voltage regulators.
20. Describe the block diagram of an LM 380 power amplifier.

PART C (5 x 14 = 70 Marks)

21. (a) Describe the various steps involved in the manufacture of a monolithic IC.

(OR)

- (b) (i) Enumerate the processes involved in thin film deposition. [9]
(ii) Explain why inductors are difficult to fabricate in IC's. [5]

22. (a) Explain with figures the principle of operation of an integrator using Op-amp.

(OR)

- (b) Draw a neat block diagram of a typical Op-Amp and explain in detail.

23. (a) Draw an Op-Amp based sample and hold circuit. Provide a detailed explanation.

(OR)

- (b) Draw the Binary Weighted resistor type DAC. Explain its principle in detail.

24. (a) Explain the functional block diagram of a 555 timer.

(OR)

(b) Draw a neat block diagram of PLL and explain its functioning in detail.

25. (a) Describe switching regulators and their major components.

(OR)

(b) Draw the internal block diagram of a function generator IC and explain its working.
