Register No: …….

B.E. DEGREE EXAMINATIONS: APRIL/MAY 2011

Sixth Semester

ELECTRICAL AND ELECTRONICS ENGINEERING

U07EE604: Linear Integrated Circuits

Time: Three Hours **Maximum Marks: 100**

Answer ALL Questions:-

PART A (10 x 1 = 10 Marks)

1. During the manufacture of monolithic IC's, the electrical isolation technique NOT used is

   A) Dielectric B) Beam-LED C) Capillarization D)PN-Junction

2. IC's are generally **not** available in the following packages.

   A) Ceramic B) TO-5 glass metal C) Hockey-puck D) Dual-in-line

3. Peak detectors find applications in

   A) Level translators B) Peak current protection

   C) Test & measuring equipment D) Square wave generators

4. A differential amplifier has a differential gain of 20,000. The common mode gain is given by

   A) 1 B) ½ C) 2 D) 0

5. $i_0 = AxV_1 – (V_1 / R_0)$ characterizes

   A) Comparator B) I-V Converter C) V-I Converter D) Silicon photodiode

6. Peak detectors find applications in

   A) Level translators B) Peak current protection

   C) Test & measuring equipment D) Square wave generators

7. The 555 IC timer has

   A) Only one mode of operation as an astable multivibrator

   B) Only one mode of operation as a monostable multivibrator

   C) Only two modes of operation as an astable and monostable multivibrator

   D) Only two modes of operation as an astable and bistable multivibrator

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 input voltage

   D) An output frequency directly proportional to the characteristic frequency

9. Switching regulators improve efficiency by

A) Having low inherent noise

B) Operating at intrinsically high efficiency

C) Operating the transistor as a high-frequency switch

D) By continuously varying the impedance of the active element

10. The LM 317 is commonly used as a

A) Isolation amplifier B) Audio amplifier C) Voltage regulator D) Opto coupler

PART B [10 x 2 = 20 Marks]

11. What are monolithic IC's?
12. Describe the various packaging configurations of a chip.
13. Write the gain formula for a non-inverting amplifier.
14. Describe the differential amplifier.
15. Summarize the basic of a saw-tooth wave generator.
16. How is an Op-Amp used as I to V converter?
17. List out the operating modes of a 555 timer.
18. List out the various applications of PLL.
19. Draw the basic circuit of IC 723.
20. Describe the block diagram of an LM 380 power amplifier.

PART C [5 x 14 = 70 Marks]

21. a) Draw a detailed diagram to illustrate the fabrication of a monolithic IC.

(OR)

b) Enumerate the processes involved in thin film deposition.

22. a) Draw and explain the internal circuit of an Op-Amp in detail.

(OR)

b) Explain with figures the principle of operation of an integrator using Op-amp.

23. a) Describe the Instrumentation amplifier circuit.

(OR)

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

24. a) Describe any one operating mode of 555 Timer with suitable waveforms.

(OR)

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

25. a) (i) Detail an isolation amplifier.

(ii) Determine V_0, I_L, I_0 for Fig.C-1..

(OR)

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

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