Register Number: ……

B.E. DEGREE EXAMINATIONS: NOV/DEC 2010

Fourth Semester

ELECTRONICS AND INSTRUMENTATION ENGINEERING

U07EI404: Linear Integrated Circuits

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

Answer ALL Questions:-

PART A (10 x 1 = 10 Marks)

1. The pressure to be maintained in molecular beam epitaxial layer process is

   a) 10^-10 torr. b) 10^-9 torr. c) 10^-8 torr. d) 10^-7 torr.

2. Sio2 layer is unaffected by all chemical regents except

   a) Hydrochloric acid. b) Hydrofluoric acid.

   c)Sulphuric acid. d) Nitric acid.

3. Slew rate of an ideal op-amp will be

   a) Unity. b) Zero. c)Infinite. d)Varies square of the input.

4. The input bias current value of BJT is

   a) 200mA. b) 500mA. c)400mA. d)350mA.

5. An Astable multivibrator

   a) Gives one output pulse for every two input pulse.

   b) Gives a timed output pulse for a triggered input.

   c) Gives a train of output pulse for a triggered input.

   d) Gives four output pulse for a single input pulse.

6. A triangular wave is obtained

   a) By integrating a square wave. b) By differentiating a square wave.

   c) By integrating a sine wave. d) By differentiating a sine wave.

7. Scale factor of a multiplier is given by

   a) Vo/ (V1-V2). b) Vo/ (V2-V1). c)Vo/V1. d)Vo/V2.

8. The Driving current value of an IC555 timer is

   a) 150mA. b)200mA. c)300mA. d)450mA.

9. The line and load regulation of LM723 regulator is

   a) 0.03%. b) 0.05%. c) 0.01%. d) 0.02%.

10. The current transfer ratio (CTR) of LED Photodiode is

a) 0.01-1. b)0.01-0.03. c) 1-3. d) 0.1-1.

PART B (10 x 2=20 Marks)

11. How a surface layer of sio2 is formed?
12. Name the different types of IC packaging.
13. List down the important characteristics of ideal op-amp.
14. What is slew rate? State slew rate equation.
15. State the advantages of R-2R ladder DAC.
16. An 8-bit D-A Converter has output voltage range of 0-5 volt. Calculate the change in its output voltage when LSB bit of the input changes.
17. What is Companding?
18. List down the performance parameters of multipliers?
19. Define Load Regulation.
20. Name the various protection circuits used for the voltage regulators

PART C (5 x 14 = 70 Marks)

21. a) Describe the steps of Epitaxial Growth and Isolation in IC fabrication with necessary diagrams.

(OR)

b) With a neat sketch, Explain the Various process of fabricating diodes in a monolithic integrated circuits.

22. a) Discuss the AC characteristics of an Op-amp in detail with its supporting diagram.

(OR)

b) Derive an expression for Voltage series feed back amplifier configuration of op-amp. Explain in detail.

23. a) (i) Explain the Differentiator and Integrator applications using op-amp. (8)

(ii) With the help of circuit diagram, explain the Astable multivibrator in detail. (6)

(OR)

b) Explain the following DACs in detail.

(i) Weighted resistor type. (7)

(ii) R-2R ladder type. (7)

24. a) Draw the functional Diagram of voltage controlled oscillator using NE566 VCO and explain its operation and application

(OR)

b) Explain the operation of PLL with its various operating regions also discuss its applications.

25. a) (i) Draw and explain the functional block diagram of LM723 regulator. (8)

(ii) What is meant by optocoupler? explain the basic functioning of optocouplers. (6)

(OR)

b) With a help of block diagram, explain the working of SMPS in detail.

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