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Question Paper Code : 80498

B.E./B.Tech. DEGREE EXAMINATIONS, NOVEMBER/DECEMBER 2021.

Fourth Semester

Electrical and Electronics Engineering

EE 2254/EE 45/ EC 1260/10133 EE 405/080280028 – LINEAR INTEGRATED CIRCUITS AND APPLICATIONS

(Common to Instrumentation and Control Engineering and Electronics and Instrumentation Engineering)

(Regulations 2008/2010)

(Also Common to PTEE 2254 –Linear Integrated Circuits and Applications for B.E. (Part-Time) – Third Semester – Electronics and Instrumentation Engineering – Regulations 2009)

Time : Three hours Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

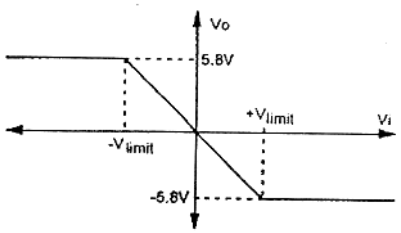
1. What are the advantages of plasma etching?

2. List the three different IC package configurations.

3. What are the different linear IC Packages?

4. What is the input impedance of a non-inverting amplifier?

5. Synthesise a circuit using Operational Amplifier to obtain the following Characteristic curve. Assume the slope between the limits as unity.



6. Why integrating type ADC's are preferably used for DC and slow varying Signals?

7. Draw the block diagram of a PLL.

8. Define capture and lock range.

9. How power amplifiers are classified? Mention any one power amplifier IC.

10. Write briefly about optocoupler.

PART B — (5 × 16 = 80 marks)

11. (a) (i) Explain ion implan, implantation and its advantages. (6)

(ii) Explain different types of IC packages with examples. (10)

Or

(b) (i) Explain the various processing steps involved infabrication of FET. Also draw its structural diagram. (12)

(ii) List the merits of integrated circuits over discrete circuits. (4)

12. (a) Discuss briefly about the DC characteristics of an operational amplifier. (16)

Or

(b) Explain briefly about how an operational amplifier is used as summer, Differentiator and integrator. (16)

13. (a) Explain the operation of Dual slope ADC with neat illustrations? Also prove that this ADC is free from drifts? (10+6)

Or

(b) With neat schematic representations explain the operation of the following circuits?

(i) Positive Peak follower.

(ii) Active positive clamper to clamp the input signal above ground state by 5 V. (8+8)

14. (a) Design a first order low pass filter for a high cut-off freq of 2 KHz and pass band gain of 2. (16)

Or

(b) Explain the operation of a square wave generator by drawing the capacitor and output voltage wave forms. (16)

15. (a) What are IC voltage regulators? Explain the principle of operation of IC LM317 as a voltage regulator. (16)

Or

(b) (i) With a neat circuit diagram explain the function of a LM 380 as a power amplifier. (12)

(ii) Explain Isolation Amplifiers. (4)

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