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| Reg. No.: | | | |

Question Paper Code: 30997

B.E./B.Tech. DEGREE EXAMINATIONS, APRIL/MAY 2019.

Fourth Semester

Electrical and Electronics Engineering

EE 2254 – LINEAR INTEGRATED CIRCUITS AND APPLICATIONS

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

(Regulation 2008)

(Also Common to PTEE 2254 — Linear Integrated Circuits and Applications for B.E. (Part-Time) Third Semester – EEE – Regulation 2009)

Time: Three hours

Maximum: 100 marks

Answer ALL questions.

PART A - (10 × 2 = 20 marks)

- 1. List the advantages of integrated circuit over discrete component circuit.
- 2. Why are inductors difficult to fabricate in IC'S?
- 3. Draw the frequency response characteristic of an AC Integrator and indicate the part where it behaves as a True Integrator.
- 4. State the causes for Slew rate in an operational amplifier? How is it indicated?
- 5. An 8 bit DAC has an output voltage range of 0 to 2.55 V. Find its resolution.
- 6. Which is the fastest ADC? State the reason.
- 7. Draw the pin diagram of IC 555 timer.
- 8. What are the essential parts of PLL?
- 9. What is a switching regulator?
- 10. Draw the pin diagram of IC 8038.

PART B — $(5 \times 16 = 80 \text{ marks})$

| 11. | (a) | | cribe in detail any two isolation technique used to provide isolation veen various components in IC fabrication with illustrations. (8 + 8) Or | | | |
|-----|--|---|--|--|--|--|
| | (b) | Explain in step by step basis, the fabrication of Planar PN Junction Diode with neat illustrations. | | | | |
| 12. | (a) | (i) | Discuss in detail the DC characteristics of an Op-Amp. (12) | | | |
| | | (ii) | Explain the functions of Op-amp as an Integrator. Draw the waveforms. (4) | | | |
| | | | Lights they occurred or only and by the court of the cour | | | |
| | (b) | (i) | With a neat diagram explain the working shunt feedback amplifiers and series feedback amplifiers. (12) | | | |
| | | (ii) | Explain the function of an Op-amp as an differentiator. Draw the waveforms. (4) | | | |
| 13. | (a) Explain the principle of Instrumentation amplifier for that circuit. | | lain the principle of Instrumentation amplifier and derive the gain hat circuit. | | | |
| | | | Or | | | |
| | (b) | Witl op-a | n neat sketches explain in detail about I/V and V/I converter using mp. | | | |
| 14. | (a) | (i) | Draw and explain the functional block diagram of IC 555 timer. (8) | | | |
| | | (ii) | Describe any two application of IC555 timer when it is working in monostable mode. (8) | | | |
| | | | Or | | | |
| | (b) | (i) | Draw the block diagram of 566 voltage control oscillator and explain it briefly. (8) | | | |
| | | (ii) | Explain any two applications of PLL. (8) | | | |
| 15. | (a) | (i) | With block schematic explain the working principle of switched mode power supply. (10) | | | |
| | | (ii) | A 555 timer configured in a stable mode with $R_A=4$ kohm, $R_B=8$ Kohm and $C=0.1~\mu$ f. Determine the frequency of the output | | | |
| | | | waveform. (6) | | | |
| | (h) | (i) | O | | | |
| | (b) | (i) | What are the requirement of an video amplifier. (4) Right avaluate IM280 and amplifier. (12) | | | |
| | | (ii) | Briefly explain LM380 audio amplifier. (12) | | | |
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