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**Question Paper Code: 34304**

B.E. / B.Tech. DEGREE EXAMINATION, APRIL 2019

Fourth Semester

Electrical and Electronics Engineering

01UEE404 – ANALOG INTEGRATED CIRCUITS

(Common to Instrumentation and Control Engineering)

(Regulation 2013)

Duration: Three hours

Maximum: 100 Marks

Answer ALL Questions.

PART A - (10 x 2 = 20 Marks)

1. Name the different methods used in fabrication of integrated resistors.
2. Why do we use aluminium for metallization?
3. Define the following terms: a) CMRR b) Slew rate.
4. Define thermal drift..
5. List out the features of instrumentation amplifier.
6. Mention some applications of current to voltage converter.
7. A PLL frequency multiplier has an input frequency of ' $f$ ' and a decade counter is included in the loop. What will be the frequency of the PLL output?
8. Under what conditions will the Gilbert cell function as a multiplier?
9. What is an Opto-coupler?
10. Mention the limitations of IC 723 general purpose regulator.

PART - B (5 x 16 = 80 Marks)

11. (a) List the levels of integration in ICs. Explain with neat diagrams the various steps involved in the fabrication of monolithic BJT, resistor and capacitor. (16)

Or

- (b) Explain in detail, the fabrication of resistance and capacitance. (16)
12. (a) Explain the AC characteristics of operational amplifier in detail. (16)
- Or
- (b) Discuss in detail about differential amplifier using op amp. (16)
13. (a) Explain the following:
- (i) Instrumentation amplifier (8)
- (ii) Multivibrators (8)
- Or
- (b) With neat diagram, explain the working of SAR type and Flash type A/D converters. (16)
14. (a) Explain briefly the following applications
- (i) Voltage to Frequency conversion (10)
- (ii) Frequency to Voltage conversion (6)
- Or
- (b) Explain how frequency multiplication is done using PLL. (16)
15. (a) (i) How is IC 723 configured as high voltage regulator circuit? Draw the schematic and explain. (8)
- (ii) Explain the monostable mode operation of IC 555 timer. (8)
- Or
- (b) Draw the schematic of ICL 8038 function generator and discuss its features. (16)
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