

Question Paper Code: 41344

B.E. / B.Tech. DEGREE EXAMINATION, NOV 2016

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. Why SiO_2 is used in oxidation Process?
- 2. Define parasitic capacitance.
- 3. Define slew rate.
- 4. What is the concept of virtual ground in op-amp circuits?
- 5. Give two applications of operational amplifier, when operated in open loop configuration?
- 6. Mention some applications of current to voltage converter.
- 7. Draw the functional diagram of a 555 timer.
- 8. If the full scale voltage of a 8 bit D/A converter is *5V*. find the resolution of D/A converter.
- 9. What is the function of opto couplers?
- 10. What are the limitations of three terminal regulators?

PART - B (5 x 16 = 80 Marks)

11. (a) With necessary illustrations, explain the various steps involved in fabrication of a typical circuit. (16)

		Or		
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(h) (1)	Explain about the diffusion r	moress of	IC 'tabrication	

	(b) (i) Explain about the diffusion process of IC fabrication		(8)
		(ii) Define epitaxy and describe the epitaxial growth process.	(8)
12.	(a)	Explain the DC characteristics of operational amplifier in detail.	(16)
Or			
	(b) (i) Define CMRR. Explain the procedure for measuring CMRR of an Op-Amp. (10)		
		(ii) Draw the circuit of an ideal non-inverting On-Amp with voltage series feed	lback

- (11) Draw the circuit of an ideal non-inverting Op-Amp with voltage series feedback and derive the expression for voltage gain. (6)
- 13. (a) (i) With brief illustrations, explain the Successive Approximation technique of analog to digital converter in detail. (8)
 - (ii) Explain the working of R-2R Ladder digital to analog converter in detail. (8)

Or

- (b) (i) Draw voltage to current converter circuit and explain its operation. (8)
 (ii) Explain the types of Clipper circuit with neat diagrams. (8)
- 14. (a) Explain the operation of 555 timer as an astable multivibrator. Derive the equation for frequency of oscillation. (16)

Or

- (b) (i) Explain the working of phase locked loop in detail.
 (ii) Explain the frequency multiplication using PLL IC in detail.
- 15. (a) Explain the block diagram of a Switched Mode Power Supply in detail. (8)

Or

(b) (i) Draw and explain the functional diagram of low voltage regulator using IC 723.

(8)

(ii) Explain the operation of boost switching regulator. (8)