

Reg. No. :

--	--	--	--	--	--	--	--	--	--	--

Question Paper Code: 34402

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

Fourth Semester

Electronics and Communication Engineering

01UEC402 – ANALOG CIRCUITS

(Regulation 2013)

Duration: Three hours

Maximum: 100 Marks

Answer ALL Questions.

PART A - (10 x 2 = 20 Marks)

1. What are the essential conditions for maintaining oscillations?
2. Draw the circuit of Armstrong oscillator and mention its application.
3. Compare clipper and clamper.
4. Draw the circuit diagram of diode clippers.
5. List the limitations of integrated circuits.
6. List out the advantages of ICs over discrete components.
7. List the applications of PLL.
8. Give the schematic of Op-Amp based sine wave to square wave converter.
9. Design a monostable multivibrator for a pulse width of 10 ms by using IC 555.
10. Define resolution of a converter.

PART - B (5 x 16 = 80 Marks)

11. (a) Explain in detail the construction and working principle of RC phase shift oscillator and derive the expression for frequency of oscillation in it. (16)

Or

- (b) In a Colpitt's oscillator, the values of the inductors and capacitors in the tank circuit are $L = 40mH$, $C_1 = 100pF$ and $C_2 = 500pF$.
- (a) Find the frequency of oscillation
 - (b) If the output voltage is $10V$, find the feedback voltage
 - (c) Find the value of C_1 for a gain of $10V$, also find the new frequency of oscillation. (16)

12. (a) Sketch a Schmitt trigger and explain its operation with necessary diagram. (16)

Or

- (b) Give a detailed account on the principle and working of Astable multivibrators. (16)

13. (a) Explain in details the step by step procedure for manufacturing process of monolithic bipolar transistor. (16)

Or

- (b) Enumerate the Ac characteristics of op-amp. (16)

14. (a) Draw and explain the operation of phase shifter circuit with necessary expressions. (16)

Or

- (b) With a neat block diagram explain the working of phase locked loop. (16)

15. (a) (i) Explain the single and dual slope type ADC with neat block diagrams. (8)
(ii) With neat diagram, explain R-2R ladder type DAC. (8)

Or

- (b) (i) Draw the pin configuration and functional diagram of a 555 timer. Explain the functional diagram. (16)