Reg. No. : | | | | | | | | | | |

Question Paper Code: 41442

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

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. The ac equivalent circuit of a crystal has L = 1*H*, C = 0.01*pF*, R = 1000*Ω* and C_m = 10*pF*. Calculate f_s and f_p.
3. What is a clamper? How are they classified?
4. Draw the electrical equivalent circuit of pulse transformer.
5. What is an integrated resistor in monolithic ICs?
6. Define slew rate.
7. List the applications of PLL.
8. Define lock range of a PLL.
9. Name the three components of a successive approximation 8 bit ADC.
10. Define time constant.

PART - B (5 x 16 = 80 Marks)

11. (a) Draw the circuit of Hartley Oscillator and explain its working. Derive the expressions for frequency of oscillation and condition for starting of oscillations. (16)

Or

(b) (i) Derive the frequency of oscillation of a transistorized RC phase shift oscillator. (12)

(ii) A Wienbridge oscillator is used at an operating frequency of 10*kHz*. If the value of resistor R is 100*kΩ*, find the value of the capacitor C. (4)

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 bistable multivibrators. (16)

13. (a) Explain the steps involved in the manufacturing process of an IC. (16)

Or

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

14. (a) Give a detailed account of applications of PLL. (16)

Or

(b) (i) Explain the principle of working of an instrumentation amplifier with necessary circuit diagram. (8)

(ii) With neat diagram explain the operation of differentiator and integrator. (8)

15. (a) Explain the successive approximation and dual slope A/D converters in detail. (16)

Or

(b) (i) Draw the pin configuration and functional diagram of a 555 timer. Explain the functional diagram. (12)

(ii) Design a monostable multivibrator using 555 timer to produce a pulse width of 150*mS*. (4)