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Question Paper Code: 31442

B.E. / B.Tech. DEGREE EXAMINATION, MAY 2017

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. State barkhausen criteria for sinusoidal oscillators.
2. Draw the circuit of Armstrong oscillator and mention its application.
3. Compare clipper and clamper.
4. Draw the electrical equivalent circuit of pulse transformer.
5. Give the ideal characteristics of op-amp.
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) 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) Explain in detail the construction and working principle of RC phase shift oscillator and derive the expression for frequency of oscillation in it. (16)
12. (a) Explain the working of monostable multi vibrator using BJT with relevant waveforms. Derive the expression for varying its pulse width at the output. (16)

Or

- (b) Draw the circuit diagram of collector coupled astable multivibrator and illustrate its operation with relevant waveforms. (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) Give a detailed account of applications of PLL. (16)

Or

- (b) What is an instrumentation amplifier? With a neat diagram explain the working of an instrumentation amplifier whose gain can be set by a gain setting resistor. (16)
15. (a) Explain the successive approximation and dual slope A/D converters in detail. (16)

Or

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