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B.E. / B.Tech (Full Time) DEGREE END SEMESTER EXAMINATIONS, NOV / DEC 2011

ELECTRONICS AND COMMUNICATION ENGINEERING BRANCH

FOURTH SEMESTER

EC 282 – ELECTRONIC CIRCUIT - II

(REGULATIONS 2004)

Time: 3 Hours

Max. Marks: 100

Answer All Questions

PART-A

(10 x 2 = 20 Marks)

- 1) List the properties of negative feedback amplifier.
- 2) Give the comparison table between the positive feedback amplifier and the negative feedback amplifier.
- 3) State the Barkhausen criteria.
- 4) How to avoid the phase noise in oscillators?
- 5) What is the basic principle of tuned amplifiers?
- 6) Write the practical uses of transformers.
- 7) Write short notes on current sweep generators.
- 8) List the applications of astable multivibrator.
- 9) State and explain any two switching characteristics of power MOSFET.
- 10) Draw the structure of thyristor.

PART – B

(5 x 16 = 80 Marks)

11) (a)

- (i) Derive the input impedance R_{if} of a current series and voltage shunt feedback amplifiers. (8)
- (ii) Discuss about the frequency compensation of negative feedback amplifier. (8)

12)

- (a) Explain in detail about the RC phase shift oscillator and derive the frequency of oscillation. (16)

(or)

- (b) (i) A BJT Colpitts oscillator is designed with $C_1 = 100 \mu\text{F}$, $L_3 = 10$. A variable capacitor is used in Z_2 arm. If frequency of oscillation is to vary between the range 500 Hz and 1000 Hz, determine the range of variable capacitor. (12)
- (ii) Derive the frequency of oscillation of Clapp oscillator. (4)

13)

(a) Explain the frequency response of single tuned, double tuned and stagger tuned amplifiers. (16)

(or)

(b) Describe in detail about the analysis of tuned amplifier's stability issues using neutralization techniques. (16)

14)

(a) A monostable multivibrator is to have an output pulse of $1 \mu\text{s}$ duration and 10mA amplitude. Given $h_{fe} = 20$ and reverse bias of $V_{B2} = 2$ volts for the OFF transistor and when ON, the transistors saturate. Determine R_C , R_1 , R_2 and C . Assume $V_{CC} = V_{BB} = 5$ volts. (16)

(or)

(b) With neat circuit diagram, explain the operation of astable multivibrator using BJT and derive the expression for frequency of oscillation. (16)

15.

(a) Describe in detail about the DC – DC conversion using Buck – Boost converter. (16)

(or)

(b) Discuss about the thyristor and its operations on A.C. voltage control and phase control rectifiers. (16)