

D 247

B.E./B.Tech. DEGREE EXAMINATION, APRIL/MAY 2003.

Fourth Semester

Electronics and Communication Engineering

EC 241 — ELECTRONIC CIRCUITS — II

Time : Three hours

Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. What are the effects of negative feedback on distortion and gain of an amplifier?
2. What is a negative resistance oscillator?
3. Mention the expression for frequency of oscillations for Colpitts Oscillator and Hartley Oscillator.
4. Mention the features of crystal oscillator.
5. What is meant by unloaded and loaded Q of tank circuit?
6. Mention the applications of class C tuned amplifier.
7. Draw the typical waveforms at base and collector of a collector coupled astable multivibrator.
8. What are the applications of Schmitt trigger circuit?
9. Draw the circuit diagram of an astable blocking oscillator. (RC controlled)

10. Mention the features of Miller sawtooth generator.

PART B — (5 × 16 = 80 marks)

11. (i) Brief the Barkhausen criterion for oscillation in feedback oscillator.
(ii) Draw the circuit diagram of Clapp's Oscillator and derive the expression for frequency of oscillations. How frequency stability can be improved in Clapp's Oscillator?

12. (a) (i) Draw the circuit diagram of RC phase shift oscillator and explain its operation.
(ii) What are the advantages and disadvantages of Wien Bridge Oscillator?

Or

- (b) (i) Brief about frequency ranges of RC and LC oscillators.
(ii) With simple diagrams explain the operation of negative resistance oscillator using Tunnel diode.
13. (a) Explain with a circuit diagram, the operation of a Double Tuned amplifier.

Or

- (b) (i) Brief the principles of 'Stagger tuning'.
(ii) Explain the Hazeltine method of neutralization.
14. (a) Draw the circuit diagram of a emitter-coupled monostable multivibrator and explain its operation with relevant waveforms.

Or

- (b) Explain the unsymmetrical and symmetrical triggering of bistable multivibrator.
15. (a) Draw the circuit diagram of a monostable transistor blocking oscillator with emitter timing. Explain its operation with the equivalent circuit during the pulse formation.

Or

- (b) (i) Describe the response of a high-pass RC circuit for step input, square-wave input and ramp input.
(ii) With simple diagrams, describe the principle of bootstrap circuit.