B 307

B.E./B.Tech. DEGREE EXAMINATION, NOVEMBER/DECEMBER 2005.

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 gain and input impedance of an amplifier?

2. What is a negative resistance oscillator?

3. How does the crystal oscillator maintains stable frequency?

4. Why is it difficult to have a variable frequency operation with an RC phase–shift oscillator?

5. What are the drawbacks of LC oscillators?

6. What is the effect of Q on the resonance circuit?

7. What are the advantages of double tuned amplifier over single tuned amplifier?

8. Draw the circuit diagram of a monostable multivibrator (using transistors).

9. What are the applications of pulse transformers?

10. Draw the output response of a RC high–pass filter for a step input and a ramp input.

PART B — (5 × 16 = 80 marks)

11. (i) Describe briefly the general characteristics of negative feedback amplifier. (8)

(ii) Draw the basic circuit of the voltage shunt feedback amplifier and describe the concepts involved in such an amplifier. (8)

12. (a) (i) With a circuit diagram, explain the principles involved in the Armstrong oscillator. (8)

(ii) Describe the principles involved in the Twin–T network. (8)

Or

(b) (i) Draw the circuit diagram of Wien bridge oscillator and explain its working principles. (8)

(ii) Discuss briefly about the properties of quartz crystal. Draw the electrical equivalent circuit of the crystal and explain. (8)

13. (a) With a neat circuit diagram, explain the performance of single tuned amplifier.

Or

(b) (i) Describe the principles involved in stagger tuned amplifier. (8)

(ii) Discuss briefly about neutralization in tuned amplifiers. (8)

14. (a) Draw the circuit diagram of collector coupled astable multivibrator and explain its operation, with relevant waveforms.

Or

(b) Draw the circuit diagram of a Schmitt trigger and explain its operation showing relevant input and output waveforms.

15. (a) With a neat circuit diagram and relevant waveforms, explain the performance of a triggered transistor blocking oscillator.

Or

(b) With suitable circuit diagrams, explain the following :

(i) UJT Sawtooth generator. (8)

(ii) Miller Sawtooth generator. (8)

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