Reg. No. : ☐☐☐☐☐☐☐☐☐☐☐☐

Question Paper Code : 71447

B.E./B.Tech. DEGREE EXAMINATION, APRIL/MAY 2015.

Fourth Semester

Electronics and Communication Engineering

EC 2251/EC 41/10144 EC 402/080290019 — ELECTRONIC CIRCUITS — II

(Regulation 2008/2010)

(Common to PTEC 2251 Electronic Circuits — II for B.E. (Part-Time)
Third Semester ECE — Regulation 2009)

Time : Three hours   Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1.   What are the advantages of negative feedback?

2.   State Nyquist stability criterion.

3.   Draw the equivalent circuit of crystal oscillator.

4.   Why LC oscillator is preferred over RC oscillator at radio frequencies?

5.   What is unloaded Q?

6.   What are the different coil losses?

7.   Draw the clipper circuit for two independent clipping levels.

8.   Why commutating capacitors are used in bistable multivibrator?

9.   Mention the applications of pulse transformers.

10. Name the different methods of generating a time-base waveform.

PART B — (5 × 16 = 80 marks)

11. (a) Explain the impact of negative feedback on bandwidth, stability, input and output impedances of an amplifier.

Or

(b) With an example circuit, explain the method of identifying the feedback topology. Also determine the feedback factor.

12. (a) With circuit diagram, explain the operation of Colpitts oscillator and obtain the expression for the frequency of oscillations.

Or

(b) With circuit diagram, explain the operation of op-amp based Wien-bridge oscillator. Also derive the condition for oscillation.

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

Or

(b) (i) Brief about high frequency limitations of amplifiers. (6)

(ii) Explain the Hazeltine method of neutralization. (10)

14. (a) With circuit diagram and waveforms explain the operation of a transistor based bistable multivibrator.

Or

(b) (i) Discuss on the response of a RC low-pass circuit for (1) square input and (2) ramp input. (8)

(ii) Discuss on the effect of RC time constant and condition for the circuit to operate as integrator. (8)

15. (a) A pulse transformer has the following parameters : $L = 5 \text{ mH}$, $\sigma = 40 \ \mu\text{H}$, $C = 50 \text{ pF}$, $R_1 = 200 \ \Omega$, $R_2 = 2 \text{ k}\Omega$, $n = 1$. Find the response to a 2 µs 10-V pulse.

Or

(b) With the equivalent circuit and waveforms explain the operation of a monostable transistor blocking oscillator with emitter timing.

———————

71447