Reg. No. :

Question Paper Code : 31213

B.E./B.Tech. DEGREE EXAMINATION, NOVEMBER/DECEMBER 2012.

Fourth Semester

Electronics and Communication Engineering

EC 1251 A — ELECTRONIC CIRCUITS — II

(Regulation 2008)

Time : Three hours   Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. Define transformer utilization factor.

2. Which power supply has a better voltage regulation, one with zero percent or one with 100% voltage regulation?

3. Why is quartz crystal commonly used in crystal oscillation?

4. State Barkhausen criterion for sustained oscillation.

5. List the advantage of tuned amplifier.

6. What do you understand by Q of a parallel tuned circuit?

7. Give any two applications of Schmidt trigger.

8. How is the frequency of oscillation varied in an astable multivibrator?

9. How boot-strapping improves linearity?

10. State the applications of relaxation oscillator using UJT.

PART B — (5 × 16 = 80 marks)

11. (a) (i) Explain the working of full wave rectifier with CLC filter and derive for its ripple factor.   (12)

    (ii) Compare half wave and full wave rectifier with respect to output average voltage and ripple factor.   (4)

Or

(b) (i) Draw the circuit of a zener diode regulator and discuss how regulation is achieved. (8)

(ii) Describe how output voltage can be regulated with respect to line variations and load variations using SMPS. (8)

12. (a) (i) Explain the working of Colpitt's oscillator and derive the equation for frequency of oscillation. (8)

(ii) State why crystal oscillators are preferred for high frequency stability. Draw electrical equivalent circuit of crystal. (8)

Or

(b) With neat circuit diagrams explain the principle of operation of the following two types of oscillators :

(i) Hartley oscillator (8)

(ii) Armstrong oscillator. (8)

13. (a) (i) Explain the working and frequency response of double tuned amplifier. (8)

(ii) Discuss the effect of cascading single tuned and double tuned amplifiers on bandwidth. (8)

Or

(b) (i) Explain how single tuned, double tuned and stagger tuned amplifiers differ from each other. (6)

(ii) A six-stage IF amplifier uses double tuned amplifiers each tuned to 455 kHz. Each stage has a voltage gain of 10, Q of 20. All the tuned circuits are critically coupled. Calculate the over all voltage gain and bandwidth. (10)

14. (a) (i) Design an astable multivibrator to work at 1 kHz. (8)

(ii) Compare monostable and bistable multivibrators. (8)

Or

(b) (i) Draw the circuit diagram diode clipper and clamper circuits and explain its working. (8)

(ii) Explain various triggering methods for bistable multivibrators. (8)

31213

15. (a) (i) Describe the application of time base generator in CRO with suitable waveforms. (8)

    (ii) Draw the circuit diagram of a transistor type Bootstrap time base generator for voltage ramp wave. (8)

Or

(b) (i) With the help of a circuit diagram explain the working of UJT sawtooth waveform generator. (8)

    (ii) A UJT has a firing potential of 15 V. If it is connected across a capacitor of a series RC circuit with R = 500 kΩ and C = 100 pF supplied by a source of 30 V d.c. Calculate the time period of the sawtooth wave generator. (8)

—————

31213