Reg. No. : ☐☐☐☐☐☐☐☐☐☐☐☐

Question Paper Code : 11358

B.E./B.Tech. DEGREE EXAMINATION, MAY/JUNE 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 ripple factor.

2.   List two advantages of switched Mode Power Supply.

3.   Define Barkhausen Criterion.

4.   Calculate the frequency of oscillation for the clapp oscillator with $C_1 = 0.1$ μF, $C_2 = 1 \mu$F, $C_3 = 100$ pF and L=470 μH.

5.   A tuned amplifier has its maximum gain at a frequency of 2MHZ and has a bandwidth of 50KHZ. Calculate the Q factor.

6.   Brief the relation between bandwidth and Q factor.

7.   Design an integrator to integrate a square wave of 1 MHZ.

8.   Give the circuit of a diode clamper.

9.   Mention any two applications blocking oscillator.

10. Define sweep time and fly back time.

PART B — (5 × 16 = 80 marks)

11. (a) Explain the action of full-wave rectifier with resistive load and give waveforms of input and output voltages. Also show that a full-wave rectifier is twice as efficient as a half-wave rectifier.   (16)

Or

   (b) (i) Explain LC and CLC filters used in power supplies.   (8)

       (ii) Design a Zener voltage regulator to meet the following specifications: Output voltage = 5V, load current = 10mA, Zener wattage = 400mw and Input voltage = 10V ± 2V.   (8)

12. (a) (i) Explain Wien's bridge oscillator and derive its frequency of oscillations.   (10)

       (ii) In Colpitt's oscillator $C_1 = 0.2 \ \mu F$ and $C_2 = 0.02 \mu F$. If the frequency of oscillation is 10 KHZ, find the value of the inductor. Also find the value of the inductor if C_1 is doubled.   (6)

Or

   (b) (i) With neat circuit diagram, Obtain an expression for the frequency of oscillation of a Hartley oscillator.   (8)

       (ii) Write a note on Quartz crystal oscillators.   (8)

13. (a) Sketch and explain class 'C' tuned amplifier and derive its efficiency. (16)

Or

   (b) (i) With the response characteristics explain a single-tuned amplifier.   (8)

       (ii) Explain Hazeltine Neutralization method.   (8)

14. (a) (i) Sketch and define transistor switching times.   (8)

       (ii) Explain about positive, negative and combination clippers.   (8)

Or

   (b) Explain the working of bi-stable multivibrators. Also brief about various triggering methods suitable for bi-stable multivibrators.   (16)

15. (a) With neat circuit diagram and suitable waveforms explain Astable blocking oscillator with base timing.   (16)

Or

   (b) Write short notes on:

       (i) Voltage time base circuits.   (8)

       (ii) Current time base circuits.   (8)

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