

Reg. No. _____

Karunya University

(Declared as Deemed to be University under Sec.3 of the UGC Act, 1956)

End Semester Examination – November / December 2008

Subject Title: **SOLID STATE CIRCUITS - II**

Time : 3 hours

Subject Code: **EC206**

Maximum Marks: 100

Answer ALL questions

PART – A (10 x 1 = 10 MARKS)

1. What is the response of a differentiator to a step input?
2. A transistor clipper operates in _____ regions in the output characteristics.
3. A bistable multivibrator has two _____ status.
4. A sine wave can be converted to a square wave using _____ circuit.
5. What is the duration of quasi-stable state in monostable multivibrator?
6. _____ circuit is a voltage to frequency converter.
7. Draw a voltage sweep waveform.
8. The bootstrap circuit works on the principle of _____.
9. What are the applications of blocking oscillator?
10. What is a pedestal?

PART – B (5 x 3 = 15 MARKS)

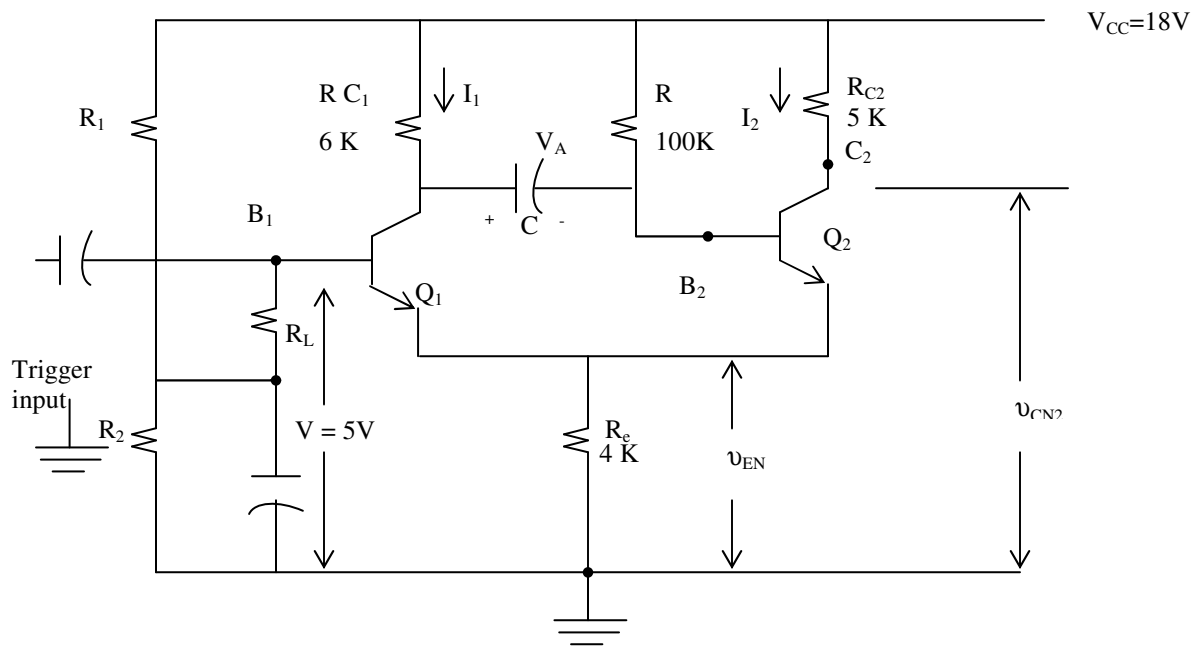
11. Draw a low pass RC circuit and obtain its cut-off frequency.
12. Explain the function of commutating capacitors in a bistable circuit.
13. Explain how an astable multivibrator becomes a VCO.
14. What are the three measurements of deviation from linearity in a sweep circuit?
15. Explain the working of a bidirectional sampling gate using a single transistor.

PART – C (5 x 15 = 75 MARKS)

16. a. Obtain the response of a low pass RC circuit to step and pulse inputs. (10)
b. Draw a diode clipper that passes a sine wave between + 1 V and + 2V. (5)
(OR)
17. a. Obtain the response of a high pass RC circuit to step and pulse inputs. (10)
b. Explain the clamping circuit theorem. (5)
18. a. With neat diagram, explain the working of Schmitt trigger circuit. (10)
b. Explain symmetrical triggering of a binary circuit. (5)
(OR)
19. In a fixed – bias transistor binary circuit using NPN transistors,
 $V_{cc} = 12 \text{ V}$, $V_{BB} = -12 \text{ v}$, $R_c = 2.2 \text{ k } \Omega$, $R_1 = 15 \text{ k } \Omega$, $R_2 = 100 \text{ k } \Omega$, $h_{FE} (\text{min}) = 20$. Calculate the steady – state voltage and currents in the circuit.
20. a. With necessary diagrams, explain the working of a collector – coupled astable multi vibrator. (10)
b. Explain how a mono stable multivibrator can be triggered (5).
(OR)

[P.T.O]

21. An emitter – coupled mono stable multi vibrator circuit is given below. Calculate the voltage levels of the waveforms with germanium transistors having $h_{FE} = 50$, $r_{bb'} = 200\Omega$.



22. a. Explain the working a transistor Miller time-base generator. (10)
 b. Draw a simple current sweep circuit and explain its working. (5)
 (OR)
23. a. With circuit diagram and waveforms, explain the working of a transistor bootstrap time-base generator. (10)
 b. Discuss the requirements of a television sweep circuit. (5)
24. a. Describe the working of triggered transistor blocking oscillator with base timing. (10)
 b. Explain the working of a unidirectional diode gate. (5)
 (OR)
25. a. Describe the working of an RC – controlled astable blocking oscillator. (10)
 b. Explain the working a bidirectional diode gate. (5)