

C 37070

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Name.....

Reg. No.....

**FOURTH SEMESTER B.TECH. (ENGINEERING) DEGREE  
EXAMINATION, JUNE 2004**

**CS 2K 404. ELECTRONIC CIRCUITS AND SYSTEMS**

(New Scheme)

Time : Three Hours

Maximum : 100 Marks

*Assume suitable data that are not given.*

1. (a) Give an example of the transient approach to the steady-state in a clamping circuit.  
(b) What is meant by synchronized clamping ?  
(c) Draw the input-output characteristics of transistor inverter, and write the effect of an increase in load current.  
(d) A TTL inverter has the parameters  $V_{IL} = 0.8$  V,  $V_{IH} = 2.4$  V,  $V_{OL} = 0.4$  V and  $V_{OH} = 3.5$  V. A CMOS inverter has the parameters  $V_{IL} = 1.5$  V,  $V_{IH} = 3.5$  V,  $V_{OL} = 0.01$  V and  $V_{OH} = 4.99$  V. Calculate the noise margin when two TTL inverters are cascaded and when two CMOS inverters are cascaded.  
(e) Draw the circuit of a simple digital to analog converter.  
(f) Draw the logic diagram of a memory cell that uses a flip-flop and logic gates.  
(g) Draw the frequency spectrum of FM wave.  
(h) What is meant by polarization ? Explain.

(8 × 5 = 40 marks)

2. (a) Draw the circuit of bootstrap sweep generator and explain.

*Or*

- (b) Draw the circuit of emitter coupled monostable multivibrator and explain its operation with neat waveforms.

(15 marks)

3. (a) (i) Draw the circuits of CMOS-NAND gate and CMOS-NOR gate and draw the voltage divider equivalent circuits.

(8 marks)

- (ii) Explain TTL-CMOS interfacing.

(7 marks)

*Or*

- (b) Draw the circuit of two input TTL-NAND gate with totem pole output.

(15 marks)

4. (a) Draw the circuit of bipolar-transistor RAM and explain.

*Or*

- (b) Draw the circuits of static MOS memory cell and dynamic MOS memory cell and explain.

(15 marks)

**Turn over**

5. (a) Discuss the types, causes and effects of the various forms of noise which may be created within a receiver or an amplifier.

Or

- (b) Briefly explain the function of each of the blocks in superheterodyne receiver. How is the constant intermediate frequency achieved in the superheterodyne receiver ?

(15 marks)

[4 × 15 = 60 marks]