C 36768

Name.....

Reg. No.....

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

$\frac{\text{CSE 404}}{\text{PTCSE 403}}$—DIGITAL ELECTRONICS

(Old Scheme)

Time : Three Hours Maximum : 100 Marks

Answer **all** *questions.*

I. (a) Define fan in, fan out of a logic gate.

(b) Construct RTL - NOR gate.

(c) What are the advantages of static RAM over dynamic RAM.

(d) EEPROM is sometimes referred to as non-volatile RAM. Why ?

(e) Draw the circuit of schmitt trigger.

(f) Discuss the characteristics of Tunnel diode.

(g) Discuss the features of programmable logic array.

(h) Construct 4 × 1 multiplexer.

(8 × 5 = 40 marks)

II. (a) Draw the circuit of TTL gate with totem-pole output and explain the operation.

Or

(b) Draw the circuit of ECL and explain the operation.

III. (a) A computer uses RAM chips of 1024 × 1 capacity. How many chips are needed and how should their address lines be connected to provide a memory capacity of 1024 bytes ?

Or

(b) Draw the circuit of dynamic RAM (CMOS) and explain its function.

IV. (a) Draw the circuit of emitter coupled monostable multivibrator and explain the operation with suitable waveforms.

Or

(b) Discuss the principle behind UJT. Give the constructional details. Draw the characteristics and explain.

V. (a) Implement the following Boolean function with a 4 × 1 multiplexer and external gates. Connect inputs A and B to the selection lines. The input requirements for the four data lines will be a function of variables C and D.

$$F(A, B, C, D) = \Sigma (1, 3, 4, 11, 12, 13, 14, 15)$$

Or

(b) Construct 5 × 32 decoder with four 3 × 8 decoders with enable and one 2 × 4 decoder.

(4 × 15 = 60 marks)