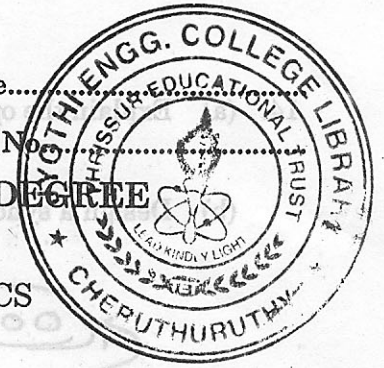C 15644

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Name.....

Reg. No.....

FOURTH SEMESTER B.TECH. (ENGINEERING) DEGREE EXAMINATION, JUNE 2011

EE 09 405/PTEE 09 404—DIGITAL ELECTRONICS

(2009 Admissions)

Time : Three Hours

Maximum : 70 Marks

Part A

1. Define Propagation Delay.

2. Give the truth table of NAND and XNOR gate.

3. Differentiate between Combinational logic circuit and Sequential logic circuit.

4. How is JK FF converted to T FF ?

5. What is the function of program counter ?

$(5 \times 2 = 10 \text{ marks})$

Part B

6. Compare CMOS and TTL technologies based on power dissipation voltage levels, noise immunity.

7. Perform the following operations in two's complement form :

    (i) $-36_H + 4 D_H$.

    (ii) $-A F_H - 6C_H$.

8. Draw the circuit of a full adder along with truth table.

9. Explain the 4-bit comparator circuit.

10. Draw and explain a static RAM cell and a dynamic RAM cell.

11. List the salient features of 8085 microprocessor.

$(4 \times 5 = 20 \text{ marks})$

Part C

12. (a) Discuss the operation of CMOS inverter circuit with characteristics.

Or

    (b) Explain the schematic of 3 input TTL NAND gate.

13. (a) Construct a truth table for BCD to gray code converter and draw the simplified circuit schematic (Use Karnaugh map).

Or

    (b) (i) Differentiate between ROM, PLA and PAL.   (4 marks)

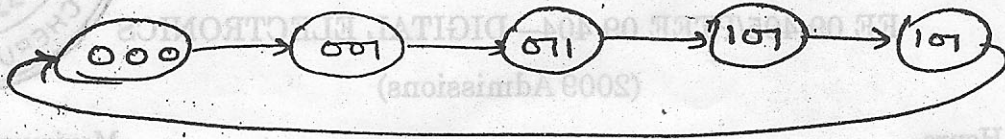   (ii) Implement a 4 × 1 multiplexer in the above 3 methods.   (6 marks)

Turn over

14. (a) Explain the operation of bidirectional shift register.

Or

(b) Design a synchronous counter for the state diagram given below :

Use D flip-flop.

15. (a) (i) Discuss the basic microcomputer operations.

(ii) What are the various flags available and state their uses.

Or

(b) Write the VHDL code, using structural modelling for a full subtractor.

(4 × 10 = 40 marks)