C 61580 (Pages 2) Name.....

Reg. No.....

FOURTH SEMESTER B.TECH. (ENGINEERING) DEGREE EXAMINATION, APRIL 2014

(2009 Scheme)

EE 09 405/PTEE 09 404—DIGITAL ELECTRONICS

Time : Three Hours Maximum : 70 Marks

Part A

Answer **all** *questions.*

1. Explain the terms current sourcing and sinking in logic families.
2. What is X if $65.565_{10} = X_{16}$?
3. What are called don't care condition in K-map simplification method ?
4. What is priority encoder? How it differ from ordinary encoder ?
5. What are the various types of buses used in microprocessor ?

(5 × 2 = 10 marks)

Part B

Answer any **four** *questions.*

6. With necessary diagrams explain the characteristics of TTL logic family.
7. Draw a CMOS inverter and explain its working.
8. Design a binary to gray code converter and explain its working.
9. With block diagram explain the operation of BCD adder.
10. Explain the terms state table, state diagram and state reduction.
11. What is ALU? What are the functions of ALU ?

(4 × 5 = 20 marks)

Part C

Answer **all** *questions.*

12. Draw and explain the working of CMOS NOR gate.

Or

13. Explain about the three output configurations used in TTL logic family.
14. Prove that : (i) A + A' B + AB' = A + B ; (ii) A'BC + AB'C + ABC' + ABC = AB + AC + BC.

Or

15. Design a 16 : 1 MUX using five 4 : 1 MUX.

Turn over

16. Design a Mod-10 synchronous up counter using JK flip flop.

Or

17. Explain briefly about ROM, PROM, EPROM, PLA and PAL.

18. Explain different addressing modes supported by 8085.

Or

19. With examples and waveforms where ever applicable, describe about :

    (i) Mnemonics ;

    (ii) Machine cycle ;

    (iii) Instruction cycle ;

    (iv) T state.

(4 × 10 = 40 marks)