SATHYABAMA UNIVERSITY

(Established under section 3 of UGC Act, 1956)

Course & Branch: B.E – EIE
Title of the paper: Digital Logic Theory and Design
Semester: III   Max.Marks: 80
Sub.Code: 6C0065 (2006-2007)   Time: 3 Hours
Date: 23-04-2009   Session: AN

PART – A   (10 x 2 = 20)
Answer All the Questions

1. Convert the following binary number to octal and hexadecimal 111101000.0111.

2. What is Karnaugh map?

3. List five series of TTL circuits

4. In what type of application should ECL not be used?

5. Define the term glitch.

6. Define the term strobing.

7. What do you mean by zero suppression?

8. What is a carry?

9. What is the race condition?

10. Give an example for sequential circuit.

PART – B   (5 x 12 = 60)
Answer All the Questions

11. Perform the following conversions:
     (a) 435_{10} to octal
     (b) 540_8 to binary
     (c) 412_{16} to binary
    Also perform binary multiplication of

       (i)   1001 x 110

       (ii) 111 x 101

<div align="center">(or)</div>

12. Design a digital system that adds and subtracts two binary fixed point numbers in sign 2's complement form.

13. (a) Describe the major difference between a bipolar integrated circuit and an MOS integrated circuit. (7)
    (b) What are the advantages of ECL over other IC technologies? (5)

<div align="center">(or)</div>

14. (a) Does CMOS or TTL perform better in a high-noise environment? Why? (7)
    (b) Explain why an open TTL input acts as a HIGH. (5)

15. (a) Implements a full adder circuit with a decoder and two OR gates. (8)
    (b) Explain how a PLA differs from a ROM. (4)

<div align="center">(or)</div>

16. Explain the working of following circuits:
    (a) MUX
    (b) DEMUX
    (c) Encoder/ Decoder.

17. Design a counter using T flip-flop for binary counting sequence: 0, 1, 3, 7, 6, 4 and repeat.

<div align="center">(or)</div>

18. Design BCD to decimal decoder.

19. (a) Write down the output specifications of sequential circuit.(8)
    (b) Describe about stable and unstable states of sequential circuit. (4)

<div align="center">(or)</div>

20. Write short notes on:
    (a) Application of sequential circuits
    (b) Race free assignment.
    (c) Hazards.