

5. BCD representation uses binary combinations 0000 to 1001 to denote decimal digits 0 to 9. Combination 1010 through 1111 are forbidden.

Design a single digit BCD adder to add two single digit BCD numbers. How can it be used for adding two multi-digit BCD numbers.

6. Using a shift Register and other gates, design a sequence generator for producing a repeating binary sequence of

0-1-1-0-1-1-0-1.

7. (a) Explain the following :

- (i) Fault diagnosis
- (ii) Stuck type faults
- (iii) Test set.

- (b) Obtain a test set for the boolean function

$$f = \overline{A} \cdot \overline{B} + C.$$

BACHELOR OF COMPUTER SCIENCE ENGG. EXAMINATION, 2009

(Old Syllabus)

(2nd Year-2nd Semester)

DIGITAL LOGIC-II

Time : Three hours

Full Marks : 100

Answer any *five* questions.

All questions carry equal marks.

1. A clocked sequential circuit has one level input and produces an output pulse for every input sequence of 0101 and zero at all other time. Design the circuit using J/K flip-flops.
2. Design a BCD counter using master slave J/K flip-flops.
3. Design an accumulator using J/K flip-flops and other gates for performing :
 - (a) Arithmetic addition ;
 - (b) Logical AND;
 - (c) Logical OR and logical XOR.
4. Design the control logic of shift-and-Add Multiplier for multiplying Two 4-bit unsigned binary numbers.