97664

B.C.A. Ist Semester (New)
Examination–December, 2013
Legical Organization of Computer-I

Paper-BCA-104

Time : 3 hours   **Max. Marks : 80**

Before answering the questions, candidates should ensure that they have been supplied the correct and complete question paper. No complaint in this regard will be entertained after the examination.

Note : Student will be required to attempt **five** questions in all. Question No. 1 is **compulsory**. In addition to it, student will have to attempt **four** more questions selecting **one** question from each unit.

1. Explain the following: 16

   (i)   Error detecting and correction codes

(ii) Fixed point and floating point representation

(iii) Venn Diagram

(iv) Truth table

(v) Multilevel NAND circuit

(vi) Combinational Logic-Characteristies

(vii) Full Adder

(viii) Parallel Binary Adder

Unit-I

2. (i) What do you mean by Binary number system. Also explain the Binary Arithmetic in detail. *8*

(ii) What do you mean by Hamming Codes. Explain in detail. *8*

3. (i) What do you mean by principal of parity checking. Explain in detail. *8*

(ii) Explain the BCD codes in detail. Also explain why these codes are used. *8*

Unit-II

4. (i) What do you mean by Boolean algebra. Also explain some Boolean algebraic theorems. **8**

   (ii) What do you mean by canonical and standard form of Boolean functions. Explain. **8**

5. (i) Minimize the four Variable Logic functions **8**

   $$f(A,B,C,D) = A B \overline{C} D + \overline{A} B C D + \overline{A}\, \overline{B}\, \overline{C} + \overline{A}\, \overline{B}\, \overline{D} + A \overline{C} + A \overline{B} C + \overline{B}$$

   (b) What do you mean by don't care conditions. Explain with a suitable example. **8**

Unit-III

6. (i) What do you mean by Digital Signals. Give a brief description. **8**

   (b) Explain the different Basic gates and universal lates with their truth tables. **8**

7. (i) What do you mean by combinational logic. Also explain its design procedures, analysis procedures and its characteristics as well. **16**

8. (i)   What do you mean by code convertors. Explain in detail.   *8*

    (ii)   What do you mean by BCD to seven segment decoder? Explain.   *8*

9. Explain the following :   *16*

    (i)   Full subtractor

    (ii)   Demultiplexer

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