Roll No. .....

97664

B.C.A. Ist Semester (New) Examination–December, 2013

Logical 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-Characteristics

(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*

Unit-IV

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