

Roll No.

97664

**B.C.A 1st Semester (New Scheme)
w.e.f. 2012 Examination-
December, 2012**

Logical Organization of Computers-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 : Students 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) EBCDIC
 - (ii) BCD codes
 - (iii) Canonical forms of Boolean functions

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- (iv) Karnaugh maps
- (v) Universal gates
- (vi) Multilevel NOR circuits
- (vii) Comparator
- (viii) Parallel Binary Subtractor

UNIT - I

2. (i) What do you mean by Error Detecting and Error Correcting Codes ? Explain in detail. 8
- (ii) What do you mean by ASCII and EBCDIC ? Why these codes are normally used ? Explain. 8
3. (i) What do you mean by Fixed Point and Floating Point representation of numbers ? Explain. 8

- (ii) What do you mean by Binary Arithmetic ?
Explain in detail. 8

UNIT - II

4. (i) What do you mean by Simplification of logical functions using K-map ? Explain. 8

- (ii) Minimize the four variable logic function. 8

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

$$(\bar{A}+B+\bar{C}+\bar{D}). (\bar{B}+C).$$

$$(\bar{B}+\bar{C}). (A+\bar{B}). (\bar{B}+\bar{D}).$$

5. (a) What do you mean by Truth Tables ?
Explain. 8
- (b) Explain in detail the Venn Diagram and also explain why is it used ? 8

UNIT - III

6. (a) Explain in detail AND-OR-INVERT and OR-AND-INVERT implementation of digital circuits. 8

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(b) What do you mean by Digital Signals ?
Explain. 8

7. (a) Explain in detail the multilevel NAND
and NOR circuits. 8

(b) Give a brief explanation about the
Universal gates. 8

UNIT - IV

8. (a) What do you mean by BCD to 7 segment
Decoder ? Explain. 8

(b) Give a brief description about Encoders.
8

9. Explain the following : 16

(a) Multiplexer

(b) Half Adder.