

**67043**

**MCA 1st Semester w.e.f. Dec.  
2012 with new notes full and re-  
appear candidates Examination-  
December, 2013**

**Digital Design**

**Paper MCA-103**

**Time : 3 hours**

**Max. Marks : 80**

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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.

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**Note : Question No. 1 is compulsory. Attempt four more questions selecting one from each Unit.**

**1. Answer the following questions briefly :**

- (a) Define dynamic RAM. 2
- (b) Write uses of 1's complement. 2

- (c) Describe two advantages of floating point numbers. 2
- (d) Discuss uses of Gray code. 2
- (e) Explain ROM and their uses. 2
- (f) What is modules of a counter ? 2
- (g) Write advantages of truth tables. 2
- (h) Convert decimal number 76.25 to its binary equivalent. 2

### UNIT - I

- 2. (a) What is binary multiplicity ? How is it useful and used ? Discuss with examples. 8
- (b) Discuss uses and advantages of BCD and Hamming codes with examples. 8
- 3. Explain the following briefly with suitable examples :
  - (i) Convert binary number 1001111011.1010 to its octal and decimal equivalents. 8
  - (ii) Addition and subtraction using 2's complement methods. 8

## UNIT - II

4. (a) What is Boolean algebra ? How is it useful and used ? Explain with examples. 8
- (b) Discuss uses and advantages of Karnaugh map with suitable examples. 8
5. Describe the following with examples :
- (a) Quine-Mc-Cluskey tabular method and its uses. 8
- (b) NMOS and PMOS logic families. 8

## UNIT - III

6. (a) What is flip-flop ? How is it used and useful ? Explain working of D-flip flop with diagram. 8
- (b) Differentiate between adder and subtractor with suitable examples. 8

7. Explain the following with examples :

- (i) Contrast between synchronous asynchronous inputs. 8
- (ii) Parity between generator and checker. 8

#### UNIT - IV

8. (a) What is binary ripple counter ? How is it used and different from other counters ? Discuss with examples. 8

(b) Explain pre-settable counters with suitable examples. 8

9. Explain the following with examples :

- (i) Up/Down counters. 8
- (ii) Controlled shift registers. 8