UTTARAKHAND OPEN UNIVERSITY, HALDWANI (NAINITAL)
उत्तराखंड मुक्त विश्वविद्यालय, हल्द्वानी (नैनीताल)

MCA 1ST YEAR 1ST SEMESTER ASSIGNMENT

Last Date of Submission: 15- Jan-2014

Course Title: Digital Logic

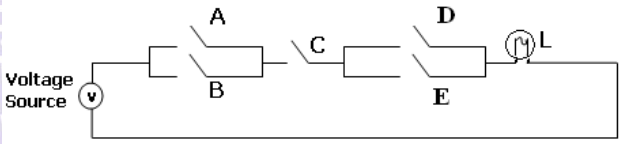
Course Code: MCA-02

Year: 2014-2015

Maximum Marks: 40 Marks

Section 'A' contains 08 short answer type questions of 5 marks each. Learners are required to answers 4 questions only. Answers of short answer-type questions must be restricted to 250 words approximately.

1. Express the following switching circuit in binary logic.



2. Perform the following by 2's complement method:
   a) 10101 – 11011 b) 100011 – 1111
3. Convert the (234)10 into base 8.
4. Multiply (34)8 by (67)8
5. Implement the function with NAND gate. a) A +B+C b) ABC+A'B'C'+B
6. Define combinational logic. Explain the design procedure for combinational circuit
7. What is universal shift register? Draw the circuit diagram of universal shift register and explain its working.
8. Explain the following
   (i) EPROM
   (ii) EEPROM

Section 'B' contains 04 long answer-type questions of 10 marks each. Learners are required to answers 02 questions only.

1. What are flip-flops? Draw the state diagram and characteristics equation of T FF, D FF and JK FF?
2. Design and explain the working of a synchronous mod –3 counter
3. Minimize the following function by tabular method:

   $F(w, x, y, z) = \Sigma(0,1,4,5,6,7,9,10,11,14,15)$
4. Draw the block diagram of a typical (2048 x 16) bits ROM and describes its working principles.