B.Tech. 3rd Semester (I.T.) Examination,

December–2013

DIGITAL ELECTRONICS

Paper–EE-204-E

Time allowed : 3 hours]   *[Maximum marks : 100*

Note : (i) Attempt any *five* questions.

   (ii) Use of non-programmable calculator is allowed.

1. Explain the following :   20

   (a) Universal Gates

   (b) Error detecting codes

   (c) Latches

   (d) Registers

   (e) Digital Muitivibrators

2. (a) Simplify the function using tabular method :   10

       $F(A, B, C, D) = 1, 5, 6, 7, 8, 9, 11, 12, 13, 15.$

   (b) Write the Hamming code for the following BCD Code (11001) for odd parity.   10

3. (a) What are binary address ? Explain with diagram & Truth Table.   10

(b) Explain the following :

    (i)   Decoder

    (ii) Demultiplexers.   10

4.   (a) Explain the parallel in parallel out shift registers.
           Also explain the applications.   10

   (b) Explain Ring Counter with Fourflip flops.   10

5.   (a) What are Flip Flops ? Differentiate between Flip
           Flops & Latches.   10

   (b) Explain the working of JK Flip Flop with neat and
           clean diagram and truth table.   10

6.   Simplify the given function using k-map method :

   F (A, B, C, D) = (0, 1, 2, 5, 6, 8, 9, 11, 13, 14) using
   minterms values only.   20

7.   (a) What is the difference between synchronous and
           asynchronous circuits ?   10

   (b) Explain the working of JOHNSON counter with
           diagram and truth table.   10

8.   Explain the following :

   (a) PAL

   (b) FPGA

   (c) ROM   20