MODEL QUESTION PAPER

BSCO4/BSE4/BSET4

III Semester B.TECH Examination, August 2011
DIGITAL ELECTRONICS

Time: 3 Hours   Max. Marks: 75

GROUP A : Answer any three questions.

Q.1   Draw and explain circuit diagram for BCD to 7 segment display decoder.

Q.2   Draw and explain Edge Triggered S-R Flip Flop with their appropriate waveform.

Q.3   Write down rules of Boolean algebra and prove Demorgan's theorems.

Q.4   What is race ground condition? Explain how it is eliminated in master-slave JK Flip-Flop.

Q.5   What do you mean by "counter"? Draw Binary Ripple Counter and explain basic principal with appropriate waveforms.

GROUP B : Answer any three questions.

Q.6   Write a short note on Gray Code.

Q.7   Subtract $(-64)_{10}$ from $(+32)_{10}$ using
(a) binary subtraction   (b) using is compliment
(c) Two's compliment.

Q.8   What are basic differences between Boolean Algebra and Ordinary Algebra? Explain Boolean Expression.

Q.9   Explain Nmos and Pmos logic families.

Q.10 Draw and explain Combinational Logic Circuits. Give basic design steps to implement Combinational Logic Circuits.

GROUP C : All Questions are Compulsory.

Q.11 Fill in the blanks

(i)   I the figure of merit of logic families is _____.

(ii) $(111101100)_2$ = (_____)$_8$.

(iii)   The purpose of clock input to flip flop is to _____.

(iv)   AND – OR – INVERT is provided with extra terminals to connect additional logic circuit called _____.

(v)   BCD code stands for_____.

Q.12 Multiple choice question

(i)   One of the following logic families is particularly suited for implementing LSI and VLSI functions.

(a) PL   (b) ECL
(c) Scotty TTL   (d) CMOS

(ii)   Following logic families does not use bipolar transistors _____.
(a) COMS   (b) DTC
(c) RTL   (d) TTL

(iii)   The excess-3 B CD code for $(1111)_2$ is_____.
(a) 01001000   (b) $(10010)_2$
(c) 00010101   (d) None of these

(iv)   The ring counter uses _____ flip flop for each stage in its sequence
(a) One   (b) Two
(c) Three   (d) None

(v) $A + A' = ?$
(a) 1   (b) 0
(c) A   (d) A'

Q.13 True or false

(i)   The n- channel MOS consists of lightly doped substrate of n – type silicon material.
(ii)   The heart of a DRAM is an array of single bit memory cells.
(iii)   A byte is equal to 8 bites.
(iv)   Flip-flops is stores 1 bit data.
(v)   A decade counter counts for ten days.

******