25/4/13

Roll No.								

B.E./B.Tech. (Full Time) DEGREE END SEMESTER EXAMINATIONS,APRIL/MAY 2013

ELECTRONICS AND COMMUNICATION ENGINEERING BRANCH

17

FOURTH SEMESTER

EC 281 – DIGITAL ELECTRONICS AND SYSTEM DESIGN

(REGULATIONS 2004)

Duration: 3 Hours **Max.marks: 100**

Answer ALL questions

PART-A **(10x2=20 Marks)**

1.Write an example for self-complementary code.
2.What is meant by weighted code?
3.Define noise margin.
4.What is meant by Fan out?
5.Realise full adder using appropriate decoder.
6.Implement f(x,y,z)=(0,2,6,7) using multiplexer.
7.What is asynchronous sequential circuit?
8.Derive the characteristic equation of SR flip flop.
9.What is fundamental mode machine?
10.Define static -0 and static -1 hazard.

PART-B **(5x16=80 Marks)**

11. Design a code converter to convert 4-bit Gray to Binary. **(16)**

12.(a) Draw the circuit of basic open collector TTL gate and explain its functions. **(16)**

OR

12.(b)Draw the circuit of CMOS inverter gate and explain its function. Write the merits and demerits of CMOS family. **(16)**

13.(a)Design a BCD adder and draw the logic diagram. **(16)**

OR

13.(b)(i)Design a full subtractor with suitable multiplexers and draw the logic diagram. **(8)**
(ii)Write a short note on priority encoder. **(8)**

14.(a) Design a synchronous sequential circuit counting in the following sequence 0,1,3,7,6,4, and repeat. Use JK flipflop. **(16)**

OR

14.(b)(i)Draw the logic diagram of bidirectional shift register and explain its functions. **(8)**
(ii)Design a Johnson counter for generating 10 timing signals. **(8)**

15.(a)Explain the cycles and races with suitable examples. **(16)**

OR

15.(b)Explain about essential hazards and pulse mode circuits. **(16)**
