Reg. No. : | | | | | | | | | | | | |

Question Paper Code : 50380

B.E./B.Tech. DEGREE EXAMINATION, NOVEMBER/DECEMBER 2017
Second Semester
Computer Science and Engineering
CS6201 – DIGITAL PRINCIPLES AND SYSTEM DESIGN
(Common to Information Technology)
(Regulations 2013)

Time : Three Hours | Maximum : 100 Marks

Answer ALL questions.

PART – A (10×2=20 Marks)

1. What is meant by self-complementing code ?
2. What are the limitations of K-Map ?
3. What are binary decoders ?
4. Write the truth table of full subtractor.
5. How synchronous counters differ from asynchronous counters ?
6. What is edge-triggered flip-flop ?
7. Define Merger graph.
8. What is critical and non-critical race ?
9. What is memory decoding ?
10. What is programmable logic array ? How it differs from ROM ?

PART – B (5×16=80 Marks)

11. a) Simplify the following expressions and implement them with two-level NAND gate circuits :

    i) $AB' + ABD + ABD' + A'C'D' + A'BC'$

    ii) $BD + BCD' + AB'C'D'$

    (OR)

b) Simplify the following expressions in (1) sum of the products and (2) products of sums :

i) $x'z' + y'z' + yz' + xy$

ii) $AC' + B'D + A'CD + ABCD$

iii) $(A' + B' + D')(A + B' + C')(A' + B + D')(B + C' + D')$

12. a) Design and implement binary to gray code convertor.

(OR)

b) Implement the switching function $F(A, B, C, D) = \Sigma(0, 1, 3, 4, 12, 14, 15)$ using 8 : 1 multiplexer.

13. a) Explain the operation of JK FF, SR-FF, T-FF and D-FF with a neat diagram. Also discuss their characteristic equation and exitation table.

(OR)

b) Design Mod-7 counter using JK flip-flop.

14. a) Explain about the designing of Asynchronous sequential circuits with example.

(OR)

b) What are Hazards and its types ? How can you design a hazard free circuit, explain with example ?

15. a) Explain about error detection and correction using hamming codes.

(OR)

b) Explain in detail about the Programmable Logic Array, Programmable Array Logic.
