B.Tech III Year I Semester (R15) Supplementary Examinations June 2018
DIGITAL CIRCUITS & SYSTEMS
(Electrical & Electronics Engineering)

Time: 3 hours
Max. Marks: 70

PART – A
(Compulsory Question)
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1   Answer the following: (10 X 02 = 20 Marks)
   (a)   What is the decimal value of binary 1011.117?
   (b)   A computer has a 2 Mb memory. What is the decimal equivalent of 2 Mb?
   (c)   Explain sum of products method.
   (d)   Draw the three variable Karnaugh map.
   (e)   Explain SR flip-flop.
   (f)   Mention the disadvantages with master slave flip-flop.
   (g)   What is an EPROM?
   (h)   What are the differences between SRAM to DRAM?
   (i)   What is state diagram?
   (j)   What is DRAM?

PART – B
(Answer all five units, 5 X 10 = 50 Marks)

UNIT – I

2   (a)   What is an ASCII code? With an ASCII keyboard, each keystroke produces the ASCII equivalent of the designated character. Suppose that you type PRINT X. What is the output of an ASCII keyboard?
   (b)   Convert the following:
          $3C_H$ and DD_H into binary code.

OR

3   (a)   What is the gray code for decimal 8? Convert gray number 1110 to its BCD equivalent.
   (b)   Design the binary to gray code and gray code to binary converter.

UNIT – II

4   Explain how to convert the complementary NAND-NAND circuit into its dual NOR-NOR circuit.

OR

5   Design a circuit of 5 input variable that generate output 1 if and only if the number of 1's in the input is prime (i.e., 2, 3 or 5).

UNIT – III

6   Design the modulo 6 counter.

OR

7   Name the types of shift registers. Explain any one of them in detail.

UNIT – IV

8   How can binary information be recorded on magnetic film? Explain with neat diagrams.

OR

9   Explain in detail about matrix addressing and addressing decoding.

UNIT – V

10   How is a combinational generated in FPGA?

OR

11   The T flip-flop has a single input T and single output Q. T = 0, output does not change. For T = 1, output complements and remain at that value as long as T = 1. Draw its: (i) State diagram. (ii) Primitive flow table.

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