Roll No. | | | | | | | | | | | |

Total No. of Pages: 02
Total No. of Questions: 09

B. tech (Sem.-3rd)

DIGITAL CIRCUIT & LOGIC DESIGN

Subject Code: BTCS-303
Paper ID: [A1125]

Time: 3 Hrs. **Max. Marks: 60**

INSTRUCTIONS TO CANDIDATE:

1. *Section-A is compulsory.*
2. *Attempt any 4 questions from Section-B. And any two questions from Section-C.*

SECTION-A

[Marks: 02 each]

Q.1. (a) State Duality Theorem.

(b) What is the difference between k- map and Qm method?

(c) Differentiate Combinational and Sequential Circuits.

(d) What do you mean by non-weighted code? Give example.

(e) What is Bidirectional shift register?

(f) How many flip flops are required for Mod- 6 Counter?

(g) Differentiate Static RAM and Dynamic RAM.

(h) What is the importance of parity bit?

(i) Differentiate Moore and Mealy Machines.

(j) Discuss the following:

a) Noise Margin b) Fan in

SECTION-B

[Marks: 05 each]

Q.2. What is a Decoder? Compare a decoder and a demultiplexer with suitable block diagrams.

Q.3. Explain the concept of Triggering? Also differentiate Edge Triggering and level Tiggering.

Q.4. Draw and explain the operation of TTL NAND Gate.

Q.5. Design a full Subtractor circuit using NAND gates only.

Q.6. Draw the circuit diagram of a mod-10 Synchronous Counter.

SECTION-C

[Marks: 10 each]

Q.7. What is Race Around Condition? How it can be avoided. Also discuss the working of Master Slave J-K Flip Flop.

Q.8. Write a note on following:-

(a) Boolean Algebra

(b) Magnitude Comparator

(b) ASCII Code

(d) Multiplexer Tree

Q.9. Draw the circuit of a R-2R ladder D-A converter and explain its operation. Also determine the resolution of the output from a DAC that has a 12-bit input.

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