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

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B.Tech (CSE/ECE/IT) / PIT B.Tech (ECE) (Sem.–3)

# DIGITAL SYSTEM DESIGN

**Subject Code : BTEC-302-18**

**M.Code : 76445**

**Date of Examination : 31-01-22**

**Time : 2 Hrs.** **Max. Marks : 60**

**INSTRUCTIONS TO CANDIDATES :**

1. **Attempt any FIVE question(s), each question carries 12 marks.**

1. a) What is the difference between digital system and analog system?

   b) What is the advantage of floating point representation compared to fixed point representation?

2. a) State and prove De Morgan's theorem.

   b) What are the characteristics of Transistor-Transistor Logic (TTL)?

   c) Define PAL and PLA.

3. What is a flip-flop? Explain J-K flip flop with its truth table and logic circuit diagram. What is race around condition? How it can be avoided?

4. Simplify the Boolean function $F(A,B,C,D,E,F)=\Sigma(6,9,13,18,19,25,27,29,41,45,57,61)$ using tabulation method.

5. Explain the different modelling styles in VHDL. Compare Dataflow, Behavioural and Structural Modelling.

6. Explain Single slope and Dual slope analog to digital converter. Which one have better performance? Justify your answer.

7. Design Pseudo Random Binary Sequence Generator.

8. a) Compare Multiplexer with Demultiplexer.

   b) Differentiate Between Encoder and Decoder.

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