



TED (10) – 4052

Reg. No

(REVISION — 2010)

Signature

**DIPLOMA EXAMINATION IN ENGINEERING/TECHNOLOGY/
MANAGEMENT/COMMERCIAL PRACTICE — OCTOBER, 2018**

HDL AND SIMULATION SOFTWARE

[Time : 3 hours

(Maximum marks : 100)

PART — A

(Maximum marks : 10)

Marks

I Answer *all* questions in one or two sentences. Each question carries 2 marks.

1. Define the term nets in verilog.
2. List two applications of FPGA.
3. Write MATLAB command for $e^{\pi\sqrt{163}}$ and $e^{i\pi/4}$
4. Write verilog program for AND gate.
5. List any two MATLAB command used in data analysis.

(5×2 = 10)

PART — B

(Maximum marks : 30)

II Answer any *five* of the following questions. Each question carries 6 marks.

1. Describe the importance and popularity of Verilog HDL.
2. Explain the componets of verilog module.
3. Write the features of CPLD.
4. Describe any six arithmetic operators used in MATLAB.
5. Describe MATLAB command window.
6. Write MATLAB code to plot a unit circle.
7. Solve the following linear equation using MATLAB.

$$x + 3y + z = 5$$

$$x - 2y = 7$$

$$x + y - z = 4$$

(5×6 = 30)



PART — C

(Maximum marks : 60)

(Answer *one* full question from each unit. Each full question carries 15 marks.)

UNIT — I

- III (a) Explain the relational, bitwise, shift and reduction operators in verilog HDL. 9
(b) Write a verilog program for 4bit addition using data flow modeling. 6

OR

- IV (a) Explain the typical design flow in verilog. 9
(b) Implement 4×1 multiplexer using data flow modeling. 6

UNIT — II

- V (a) Explain the switching methodologies of configurable I/O blocks. 9
(b) Distinguish between FPGA and CPLD. 6

OR

- VI (a) Explain the architecture of CPLD with block schematic. 9
(b) List the features of FPGA. 6

UNIT — III

- VII (a) Explain various input - output in MATLAB. 9
(b) Explain MATLAB platform dependencies. 6

OR

- VIII (a) Describe different file types in MATLAB. 8
(b) Write the MATLAB code for the following. 7
(i) $x = 2t \cos t$
(ii) $y = \sin(t^2)/t^2$
(iii) $z = t^2 - 1/t + 1$ where $t = 0, 12, \dots, 15$

UNIT — IV

- IX (a) Write MATLAB code to plot $y = \cos x$, $0 \leq x \leq 2\pi$, taking 100 linearly spaced points in the interval. 7
(b) Explain the application of MATLAB in linear algebra. 8

OR

- X (a) Explain different methods to generate overlay plots. 9
(b) Describe the following functions in MATLAB. 6
 $\text{rand}(m,n)$, $\text{diag}(v)$, $\text{diag}(A,-1)$, $\text{diag}(A, 2)$