Jiangxi University of Science and Technology
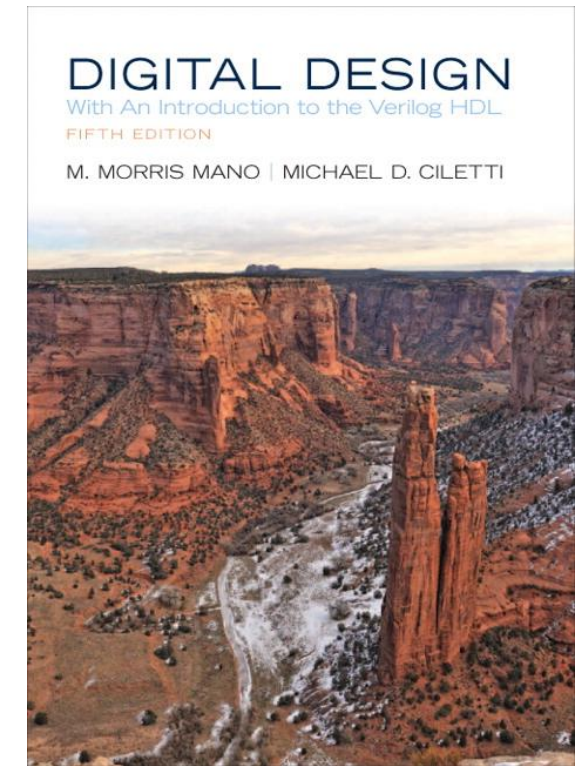
DIGITAL SYSTEM DESIGN
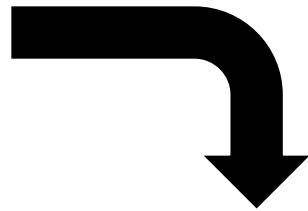
ANSWER FOR TASK 01

@AJM test

- Any one who can see this picture inform me

•Please turn off your MIC

- Just Use when I ask make it ON

- Put the real name for you account

ANSWER FOR TASK 01

Convert from binary to decimal
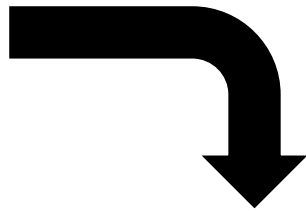
*$(1101.101)_2$

$$=(1 \times 2^3) + (1 \times 2^2) + (0 \times 2^1) + (1 \times 2^0) + (1 \times 2^{-1}) + (0 \times 2^{-2}) + (1 \times 2^{-3})$$

$$= (13.625)_{10}$$

ANSWER FOR TASK 01

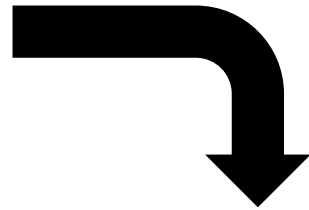## Convert from binary to decimal

*$(10110.1011)_2$

- $=(1*2^4)+(0*2^3)+(1*2^2)+(1*2^1)+(0*2^0)+(1*2^{-1})+(0*2^{-2})+(1*2^{-3})+(1*2^{-4})$
- $=(22.6875)_{10}$

ANSWER FOR TASK 01

Convert from binary to decimal

- *$(10011)_2$
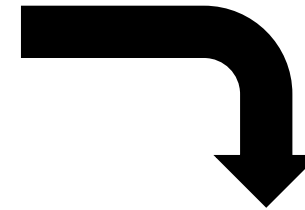
- = $(1*2^4)+(0*2^3)+(0*2^2)+(1*2^1)+(1*2^0)$
- =$(19)_{10}$

ANSWER FOR TASK 01

Convert from decimal to binary

- *$(26)_{10}$

Division By 2	Quotient	Remainder
26/2	13	0
13/2	6	1
6/2	3	0
3/2	1	1
1/2	0	1

$(26)_{10} = (11010)_2$

ANSWER FOR TASK 01

Convert from decimal to binary

- *$(76)_{10}$

Division By 2	Quotient	Remainder
76/2	38	0
38/2	19	0
19/2	9	1
9/2	4	1
4/2	2	0
2/2	1	0
1/2	0	1
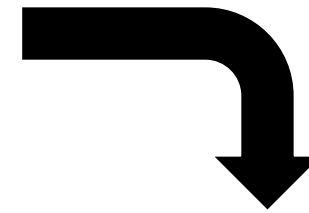
$(76)_{10} = (101100)_2$

ANSWER FOR TASK 01

Convert from decimal to binary

- * $(39)_{10}$

Division By 2	Quotient	Remainder
39/2	19	1
19/2	9	1
9/2	4	1
4/2	2	0
2/2	1	0
1/2	0	1
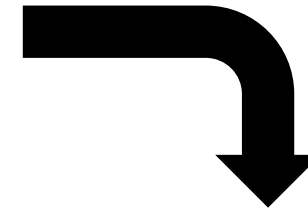
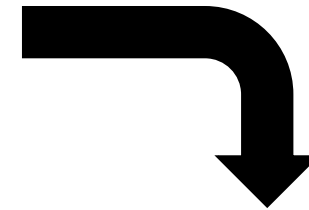$$(39)_{10}=(100111)_2$$

ANSWER FOR TASK 01

Convert from decimal to binary

- $*$ $(63)_{10}$

Division By 2	Quotient	Remainder
63/2	31	1
31/2	15	1
15/2	7	1
7/2	3	1
3/2	1	1
1/2	0	1

$(63)_{10} = (111111)_2$

ANSWER FOR TASK 01

Convert from decimal to binary

- * $(22.73)_{10}$

22

$(22.73)=(10110.10111\ldots\ldots)$

Division By 2	Quotient	Remainder
22/2	11	0
11/2	5	1
5/2	2	1
2/2	1	0
1/2	0	1

.73

Multiply by 2	Multiply	Remainder
.73*2	.46	1
.46*2	.92	0
.92*2	.84	1
.84*2	.68	1
.68*2	.36	1
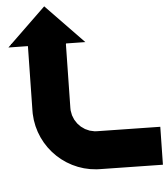
ANSWER FOR TASK 01

❖ **Convert from octal to decimal**

- *$(572.6)_8$

- $= (5 \times 8^2) + (7 \times 8^1) + (2 \times 8^0) + (6 \times 8^{-1})$
- $= (378.75)10$

ANSWER FOR TASK 01

Convert from octal to binary

- *$(5762)_8$

$$=(101\ 111\ 110\ 010)_2$$

ANSWER FOR TASK 01

Convert from Binary to Octal

$$*(1011011)_2$$

$$=(133)_8$$

ANSWER FOR TASK 01

Convert from Binary to Hexadecimal

*$(1001001001)_2$

$$0010 \quad 0100 \quad 1001$$

$$2 \qquad\qquad 4 \qquad\qquad 9$$

$(249)_{16}$

ANSWER FOR TASK 01

Convert from Binary to Hexadecimal

$*(1011101101)_2$

$$0010 \quad 1110 \quad 1101$$
$$2 \qquad\quad E \qquad\quad D$$
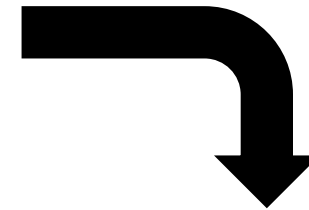
$(2ED)_{16}$

ANSWER FOR TASK 01

Convert from Hexadecimal to Binary

$*(A3C9E)_{16}$

$$(1010\ 0011\ 1100\ 1001\ 1110)$$
$$\ \ \ A\ \ \ \ \ \ 3\ \ \ \ \ \ C\ \ \ \ \ \ 9\ \ \ \ \ \ E$$

ANSWER FOR TASK 01

Convert from Hexadecimal to Decimal

$*(2A.8)_{16}$

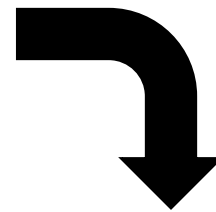$= (2 \times 16^1) + (10 \times 16^0) + (8 \times 16^{-1})$

$= (42.5)_{10}$

ANSWER FOR TASK 01
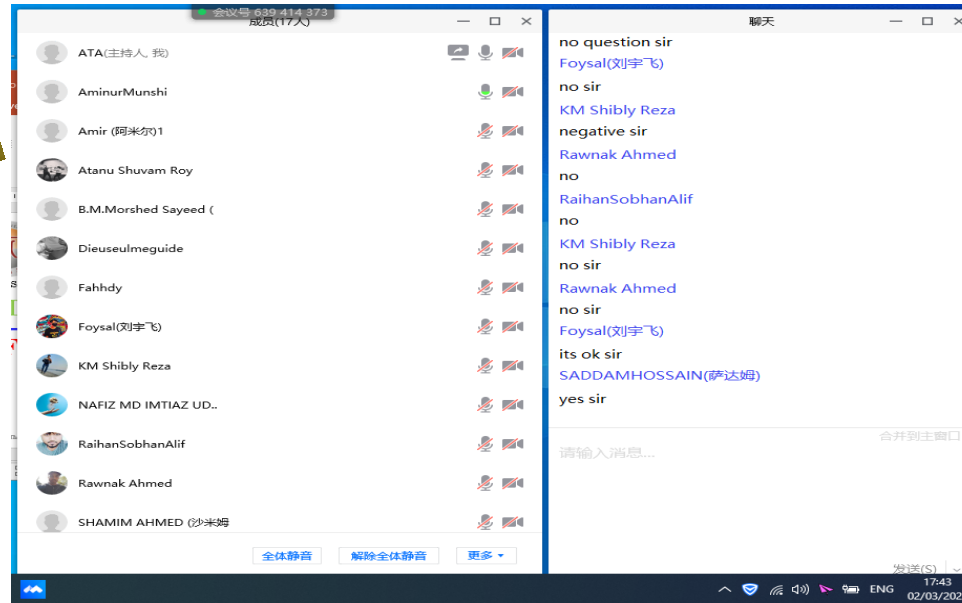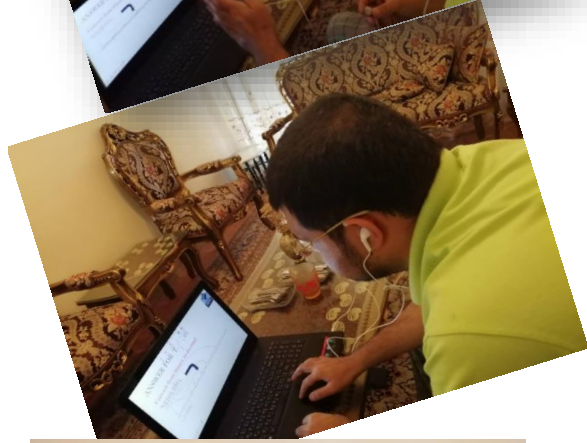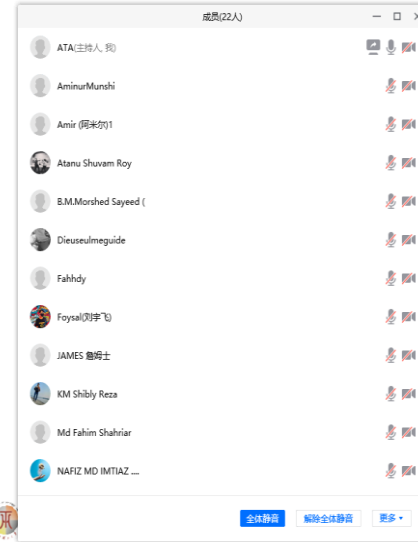
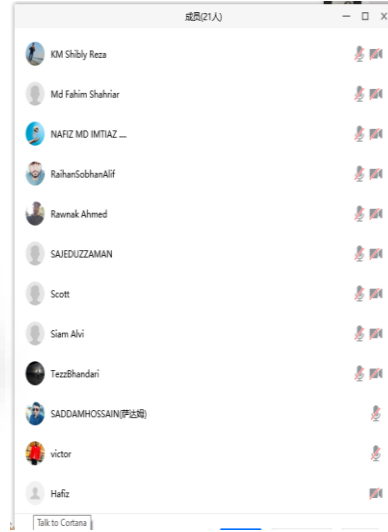**Convert from base 5 to Decimal**

* $(341.24)_5$

Division By 5	Quotient	Remainder
341/5	68	1
68/5	13	3
13/5	2	3
2/5	0	2

Multiply by 2	Multiply	Remainder
.24*5	20	1
.20*5	00	1

$(2331.11)_{10}$

The Small virus cannot stop our Learning

DIGITAL
SYSTEMS DESIGN

@ 2 March
8 pm Beijing time

DR AJM

江西理工大学
JIANGXI UNIVERSITY OF SCIENCE AND TECHNOLOGY
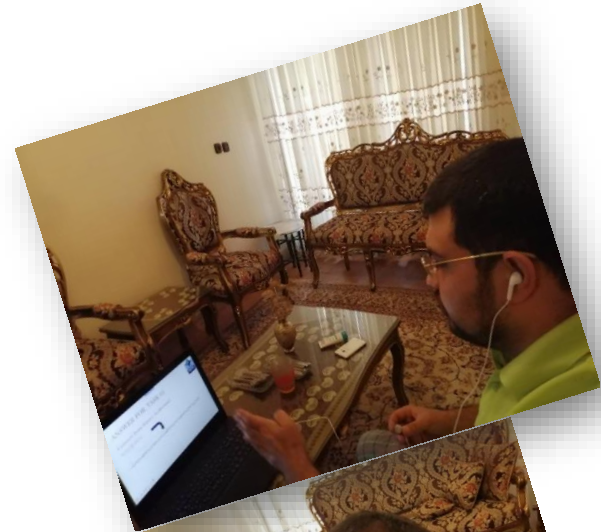
Reference

- **Digital Design**

With an Introduction to the Verilog HDL, FIFTH EDITION

- Digital Design book by:

- My note

- Other famous lecturer in the world