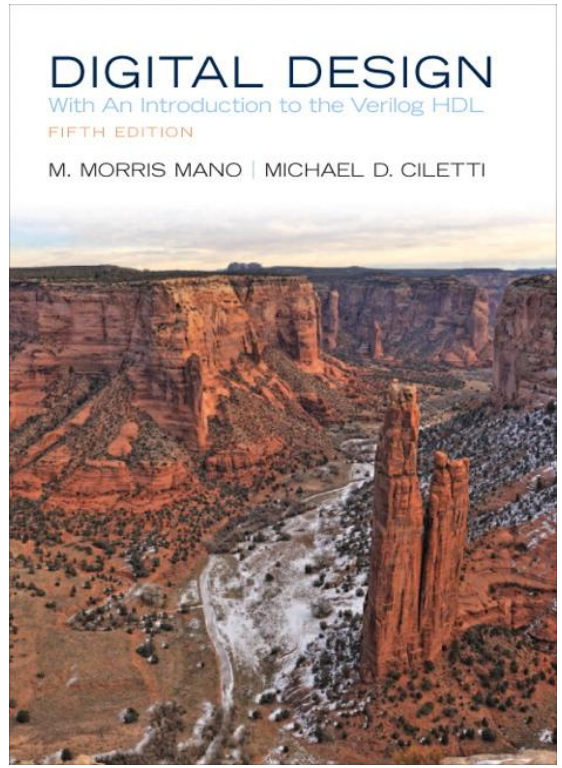
Jiangxi University of Science and Technology

# DIGITAL SYSTEM DESIGN

## ANSWER FOR TASK 01

# @AJM test

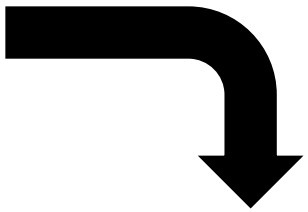
- Any one who can see this picture inform me
- **Please turn off your MIC**
- Just Use  when I ask make it ON
- Put the real name for you account



# ANSWER FOR TASK 01

**Convert from binary to decimal**

*$(1101.101)_2$



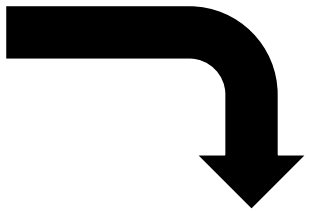
$$=(1 \times 2^3) + (1 \times 2^2) + (0 \times 2^1) + (1 \times 2^0) + (1 \times 2^{-1}) + (0 \times 2^{-2}) + (1 \times 2^{-3})$$

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

# ANSWER FOR TASK 01

## Convert from binary to decimal

*$(10110.1011)_2$

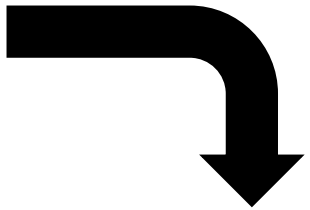


- $=(1*2^4)+(0*2^3)+(1*2^2)+(1*2^1)+(0*2^0)+(1*2^{-1})+(0*2^{-2})+(1*2^{-3})+(1*2^{-4})$
- $=(22.6875)_{10}$

# ANSWER FOR TASK 01

**Convert from binary to decimal**

- $*(10011)_2$



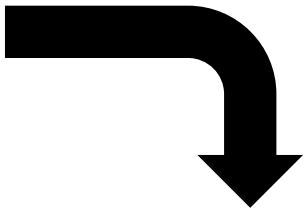
- $= (1*2^4)+(0*2^3)+(0*2^2)+(1*2^1)+(1*2^0)$
- $=(19)_{10}$

# 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 |



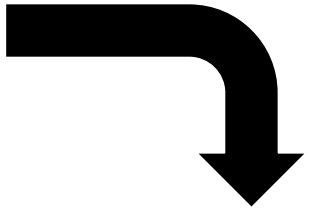
$(26)_{10}=(11010)_2$

# 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 |



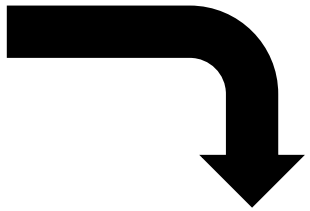
$(76)_{10}=(101100)_2$

# 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 |



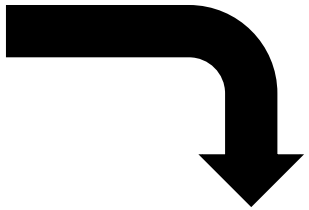
$(39)_{10}=(100111)_2$

# 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

- * $(22.73)_{10}$

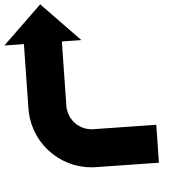
22

| 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 |

(22.73)=(10110.10111.....)



# ANSWER FOR TASK 01

## ❖Convert from octal to decimal

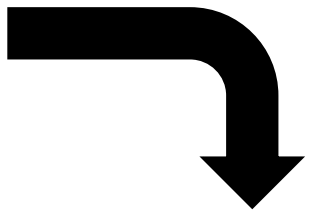
- $*(572.6)_8$

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

# ANSWER FOR TASK 01

**Convert from octal to binary**

- $*(5762)_8$

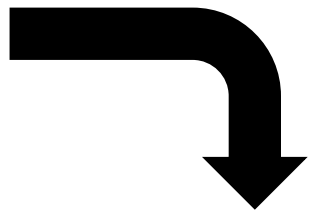


$=(101\ 111\ 110\ 010)_2$

# 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 0100 1001

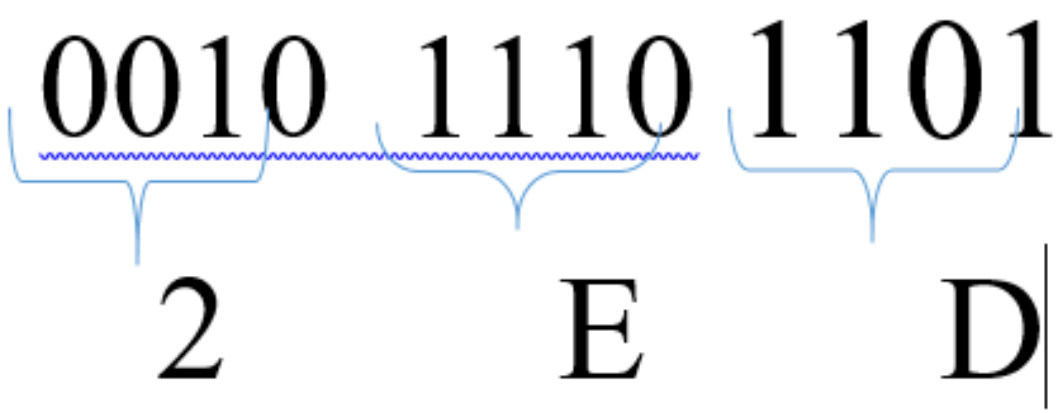
2 4 9

$(249)_{16}$

# ANSWER FOR TASK 01

**Convert from Binary to Hexadecimal**

*$(1011101101)_2$




$(2ED)_{16}$

# 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**

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

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

$$=(42.5)_{10}$$

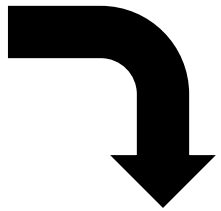
# ANSWER FOR TASK 01

**Convert from base 5 to Decimal**

* $(341.24)_5$

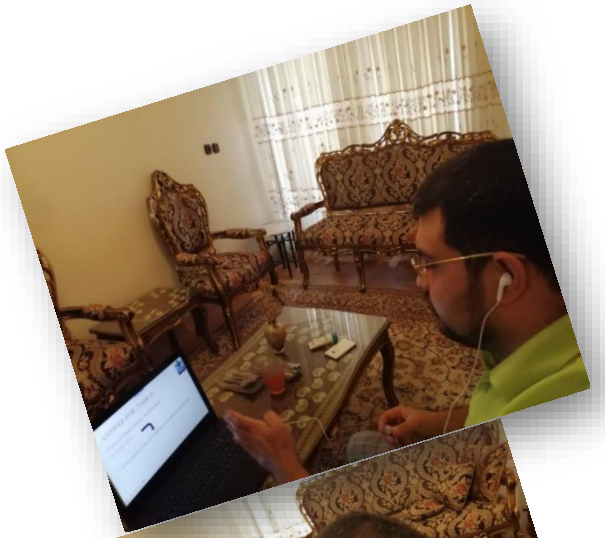
| Division By 5 | Quotient | Remainder |
|---|---|---|
| 341/5 | 68 | 1 |
| 68/5 | 13 | 3 |
| 13/5 | 2 | 3 |
| 2/5 | 0 | 2 |

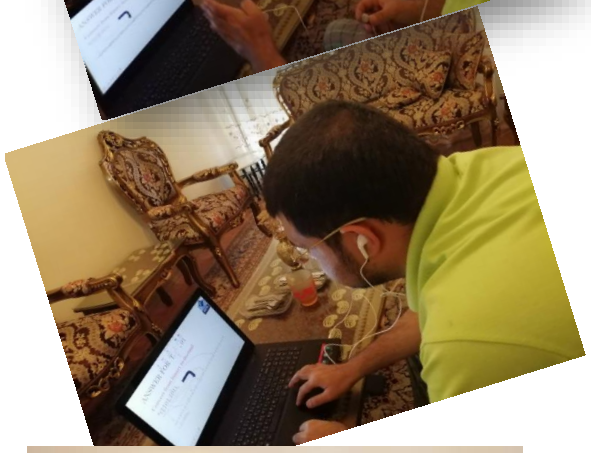
| Multiply by 2 | Multiply | Remainder |
|---|---|---|
| .24*5 | 20 | 1 |
| .20*5 | 00 | 1 |

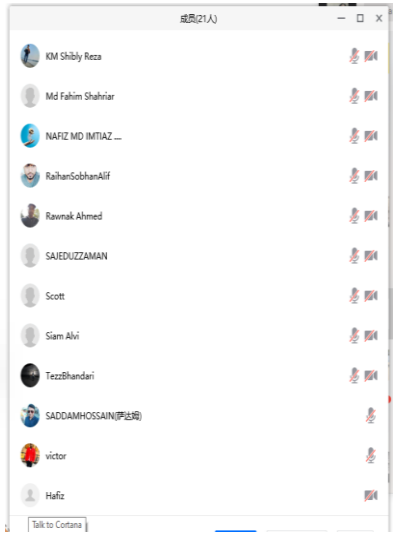


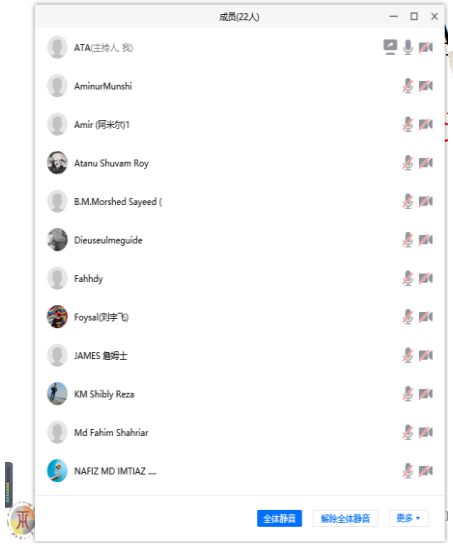
$(2331.11)_{10}$

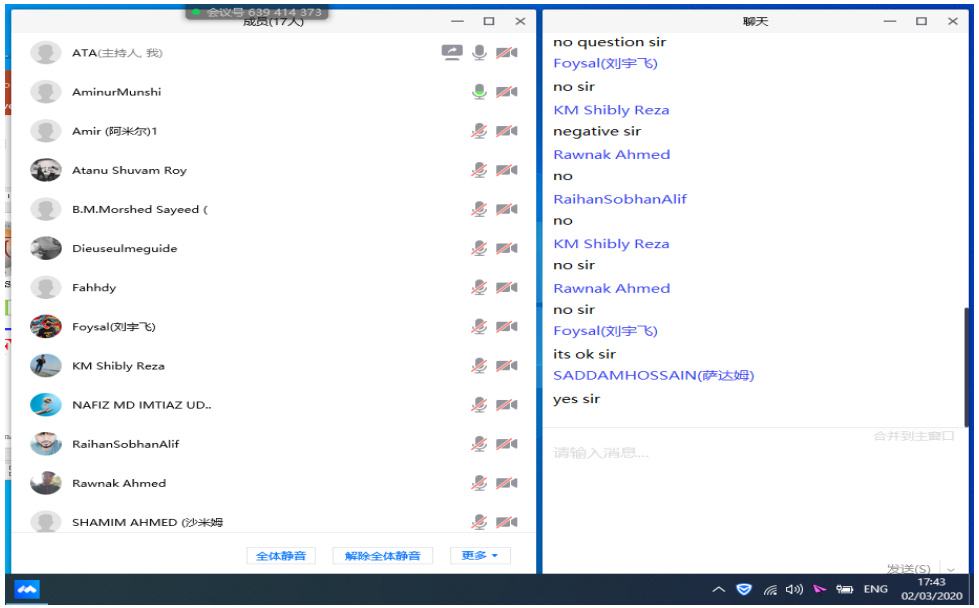
# The Small virus cannot stop our Learning

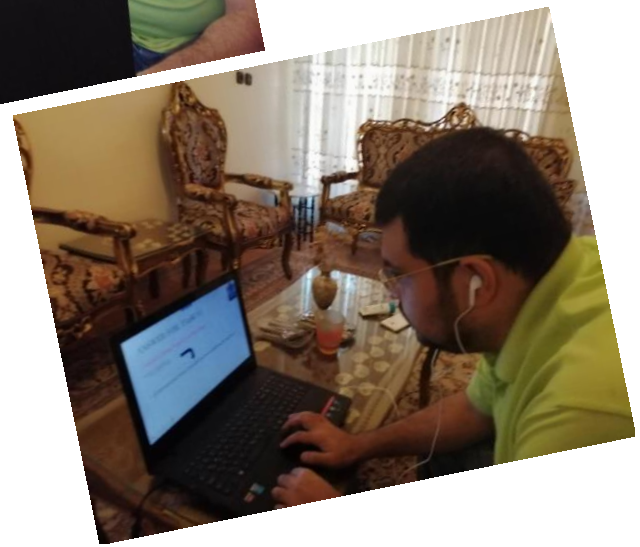






**@ 2 March**

**8 pm Beijing time**

# Reference

- **Digital Design**

With an Introduction to the Verilog HDL, FIFTH EDITION

- Digital Design book by:
- My note
- Other famous lecturer in the world