**Lab Task:**

**Complete the table by solving the bitwise instruction of all Logical gates. Add the code and output of the logical gates to show solution of MASK BITS given in the table.**

|  |  |  |
| --- | --- | --- |
| **Logic** | **Mask Bits** | |
| **INPUT VALUE : 2** | **0** | **1** |
| **AND** | 0 | 2 |
| **OR** | 2 | -1 |
| **NOT** | -3 | -3 |
| **XOR** | 2 | -3 |
| **XNOR** | -3 | 2 |
| **NOR** | -3 | 0 |
| **NAND** | -1 | -3 |

**AND MASK BITS 0**

**SOLUTION:**

.data

prompt: .asciiz"Enter an integer number : "

result: .asciiz"RESULT: "

.text

.globl main

main:

li $t0,0x00000000

li $v0,4

la $a0,prompt

syscall

li $v0,5

syscall

move $t1,$v0

and $t2,$t1,$t0

li $v0,4

la $a0,result

syscall

move $a0,$t2

li $v0,1

syscall

li $v0,10

syscall

**OUTPUT:**

****

**AND MASK BITS 1**

**SOLUTION:**

.data

prompt: .asciiz"Enter an integer number : "

result: .asciiz"RESULT: "

.text

.globl main

main:

li $t0,0xffffffff

li $v0,4

la $a0,prompt

syscall

li $v0,5

syscall

move $t1,$v0

and $t2,$t1,$t0

li $v0,4

la $a0,result

syscall

move $a0,$t2

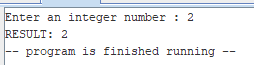
li $v0,1

syscall

li $v0,10

syscall

**OUTPUT:**

****

**OR MASK BITS 0**

**SOLUTION:**

.data

prompt: .asciiz"Enter an integer number : "

result: .asciiz"RESULT: "

.text

.globl main

main:

li $t0,0x00000000

li $v0,4

la $a0,prompt

syscall

li $v0,5

syscall

move $t1,$v0

or $t2,$t1,$t0

li $v0,4

la $a0,result

syscall

move $a0,$t2

li $v0,1

syscall

li $v0,10

syscall

**OUTPUT:**

****

**OR MASK BITS 1**

**SOLUTION:**

.data

prompt: .asciiz"Enter an integer number : "

result: .asciiz"RESULT: "

.text

.globl main

main:

li $t0,0xffffffff

li $v0,4

la $a0,prompt

syscall

li $v0,5

syscall

move $t1,$v0

or $t2,$t1,$t0

li $v0,4

la $a0,result

syscall

move $a0,$t2

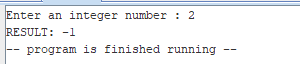
li $v0,1

syscall

li $v0,10

syscall

**OUTPUT:**

****

**NOT MASK BITS**

**SOLUTION:**

.data

prompt: .asciiz"Enter an integer number:"

result: .asciiz"RESULT: "

.text

.globl main

main:

la $a0,prompt

li $v0,4

syscall

li $v0,5

syscall

move $t0,$v0

not $t1,$t0

la $a0,result

li $v0,4

syscall

move $a0,$t1

li $v0,1

syscall

li $v0,10

syscall

**OUTPUT:**

****

**XOR MASK BITS 0**

**SOLUTION:**

.data

prompt: .asciiz"Enter an integer number : "

result: .asciiz"RESULT: "

.text

.globl main

main:

li $t0,0x00000000

li $v0,4

la $a0,prompt

syscall

li $v0,5

syscall

move $t1,$v0

xor $t2,$t1,$t0

li $v0,4

la $a0,result

syscall

move $a0,$t2

li $v0,1

syscall

li $v0,10

syscall

**OUTPUT:**

****

**XOR MASK BITS 1**

**SOLUTION:**

.data

prompt: .asciiz"Enter an integer number : "

result: .asciiz"RESULT: "

.text

.globl main

main:

li $t0,0xffffffff

li $v0,4

la $a0,prompt

syscall

li $v0,5

syscall

move $t1,$v0

xor $t2,$t1,$t0

li $v0,4

la $a0,result

syscall

move $a0,$t2

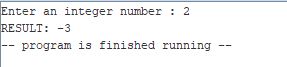
li $v0,1

syscall

li $v0,10

syscall

**OUTPUT:**

****

**XNOR MASK BITS 0**

**SOLUTION:**

.data

prompt: .asciiz"Enter an integer number : "

result: .asciiz"RESULT: "

.text

.globl main

main:

li $t0,0x00000000

li $v0,4

la $a0,prompt

syscall

li $v0,5

syscall

move $t1,$v0

xor $t2,$t1,$t0

not $t1,$t2

li $v0,4

la $a0,result

syscall

move $a0,$t1

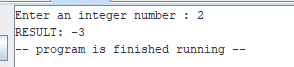
li $v0,1

syscall

li $v0,10

syscall

**OUTPUT:**

****

**XNOR MASK BITS 1**

**SOLUTION:**

.data

prompt: .asciiz"Enter an integer number : "

result: .asciiz"RESULT: "

.text

.globl main

main:

li $t0,0xffffffff

li $v0,4

la $a0,prompt

syscall

li $v0,5

syscall

move $t1,$v0

xor $t2,$t1,$t0

not $t1,$t2

li $v0,4

la $a0,result

syscall

move $a0,$t1

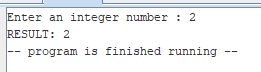
li $v0,1

syscall

li $v0,10

syscall

**OUTPUT:**

****

**NOR MASK BITS 0**

**SOLUTION:**

.data

prompt: .asciiz"Enter an integer number : "

result: .asciiz"RESULT: "

.text

.globl main

main:

li $t0,0x00000000

li $v0,4

la $a0,prompt

syscall

li $v0,5

syscall

move $t1,$v0

nor $t2,$t1,$t0

li $v0,4

la $a0,result

syscall

move $a0,$t2

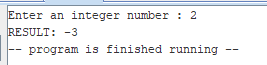
li $v0,1

syscall

li $v0,10

syscall

**OUTPUT:**

****

**NOR MASK BITS 1**

**SOLUTION:**

.data

prompt: .asciiz"Enter an integer number : "

result: .asciiz"RESULT: "

.text

.globl main

main:

li $t0,0xffffffff

li $v0,4

la $a0,prompt

syscall

li $v0,5

syscall

move $t1,$v0

nor $t2,$t1,$t0

li $v0,4

la $a0,result

syscall

move $a0,$t2

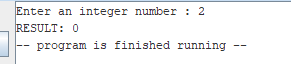
li $v0,1

syscall

li $v0,10

syscall

**OUTPUT:**

****

**NAND MASK BITS 0**

**SOLUTION:**

.data

prompt: .asciiz"Enter an integer number : "

result: .asciiz"RESULT: "

.text

.globl main

main:

li $t0,0x00000000

li $v0,4

la $a0,prompt

syscall

li $v0,5

syscall

move $t1,$v0

and $t2,$t1,$t0

not $t1,$t2

li $v0,4

la $a0,result

syscall

move $a0,$t1

li $v0,1

syscall

li $v0,10

syscall

**OUTPUT:**

****

**NAND MASK BITS 1**

**SOLUTION:**

.data

prompt: .asciiz"Enter an integer number : "

result: .asciiz"RESULT: "

.text

.globl main

main:

li $t0,0xffffffff

li $v0,4

la $a0,prompt

syscall

li $v0,5

syscall

move $t1,$v0

and $t2,$t1,$t0

not $t1,$t2

li $v0,4

la $a0,result

syscall

move $a0,$t1

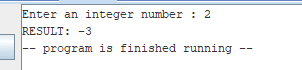
li $v0,1

syscall

li $v0,10

syscall

**OUTPUT:**

****