**Course Code: EE488**

**Assignment -3**

**PREPARED BY**

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**Question No 1 Answer**

.data

prompt: .asciiz "Enter a number: "

result: .asciiz "The result is: "

newline: .asciiz "\n"

expected: .asciiz "Expected result supposed to get: "

.text

.globl main

main:

li $v0, 4

la $a0, prompt

syscall

li $v0, 5

syscall

move $t0, $v0

sll $t1, $t0, 1 # multiply by 2

sll $t2, $t0, 3 # multiply by 8

add $t1, $t1, $t2 # add both results

li $v0, 4

la $a0, result

syscall

li $v0, 1

move $a0, $t1

syscall

li $t2, 10

mult $t0, $t2

mflo $t3

li $v0, 4

la $a0, newline

syscall

li $v0, 4

la $a0, expected

syscall

li $v0, 1

move $a0, $t3

syscall

li $v0, 10

syscall

**Question No 2 Answer**

**a.**

.data

prompt1: .asciiz "Enter a value of x: "

prompt2: .asciiz "Enter a value of y: "

prompt3: .asciiz "Enter a value of z: "

result: .asciiz "The result is: "

.text

main:

li $v0, 4

la $a0, prompt1

syscall

li $v0, 5

syscall

move $s0, $v0

li $v0, 4

la $a0, prompt2

syscall

li $v0, 5

syscall

move $s1, $v0

li $v0, 4

la $a0, prompt3

syscall

li $v0, 5

syscall

move $s2, $v0

mul $t0, $s0, 5

mul $t1, $s1, 3

add $t2, $t0, $t1

add $t3, $t2, $s2

li $v0, 4

la $a0, result

syscall

li $v0, 1

move $a0, $t3

syscall

li $v0, 10

syscall

**b.**

.data

prompt1: .asciiz "Enter a value of x: "

prompt2: .asciiz "Enter a value of y: "

prompt3: .asciiz "Enter a value of z: "

result: .asciiz "The result is: "

.text

main:

li $v0, 4

la $a0, prompt1

syscall

li $v0, 5

syscall

move $s0, $v0

li $v0, 4

la $a0, prompt2

syscall

li $v0, 5

syscall

move $s1, $v0

li $v0, 4

la $a0, prompt3

syscall

li $v0, 5

syscall

move $s2, $v0

mul $t0, $s0, 5

mul $t1, $s1, 3

add $t2, $t0, $t1

add $t3, $t2, $s2

div $t4, $t3, 2

mul $t5, $t4, 3

li $v0, 4

la $a0, result

syscall

li $v0, 1

move $a0, $t5

syscall

li $v0, 10

syscall

**c.**

.data

prompt: .asciiz "Enter the value of x: "

result\_prompt: .asciiz "\nThe result is: "

.text

.globl main

main:

li $v0, 4

la $a0, prompt

syscall

li $v0, 5

syscall

move $s0, $v0

mul $t0, $s0, $s0 # x^2

mul $t1, $t0, $s0 # x^3

add $t2, $t0, $t0 # 2x^2

add $t3, $t1, $t2 # x^3 + 2x^2

add $t4, $s0, $s0 # 2x

add $t5, $t3, $t4 # x^3 + 2x^2 + 2x

add $t6, $t5, 3 # x^3 + 2x^2 + 3x

add $t7, $t6, 4 # x^3 + 2x^2 + 3x + 4

li $v0, 4

la $a0, result\_prompt

syscall

li $v0, 1

move $a0, $t7

syscall

li $v0, 10

syscall

**d.**

.data

prompt1: .asciiz "Enter a value of x: "

prompt2: .asciiz "Enter a value of y: "

result\_prompt: .asciiz "\nThe result is: "

.text

.globl main

main:

li $v0, 4

la $a0, prompt1

syscall

li $v0, 5

syscall

move $s0, $v0

li $v0, 4

la $a0, prompt2

syscall

li $v0, 5

syscall

move $s1, $v0

mul $t0, $s0, 4 # 4x

div $t0, $t0, 3 # 4x/3

mul $t0, $t0, $s1 # (4x/3)\*y

li $v0, 4

la $a0, result\_prompt

syscall

li $v0, 1

move $a0, $t0

syscall

li $v0, 10

syscall

**Question No 3 Answer**

.data

prompt1: .asciiz "Enter the first number: "

prompt2: .asciiz "Enter the second number: "

result1: .asciiz "\nThe first number after swapping: "

result2: .asciiz "\nThe second number after swapping: "

.text

main:

li $v0, 4

la $a0, prompt1

syscall

li $v0, 5

syscall

move $s0, $v0

li $v0, 4

la $a0, prompt2

syscall

li $v0, 5

syscall

move $s1, $v0

# Swap the numbers using XOR operation

xor $s0, $s0, $s1

xor $s1, $s0, $s1

xor $s0, $s0, $s1

li $v0, 4

la $a0, result1

syscall

li $v0, 1

move $a0, $s0

syscall

li $v0, 4

la $a0, result2

syscall

li $v0, 1

move $a0, $s1

syscall

li $v0, 10

syscall

**Question No 4 Answer**

.data

prompt: .asciiz "Enter an integer: "

.text

main:

li $v0, 4

la $a0, prompt

syscall

li $v0, 5

syscall

move $t0, $v0

sll $t1 ,$t0 ,31

srl $t1 ,$t1 ,31

move $a0 ,$t1

li $v0 ,1

syscall

li $v0 ,10

syscall

**Question No 5 Answer**

.data

prompt1: .asciiz "Enter the first number: "

prompt2: .asciiz "Enter a prime number: "

.text

.globl main

main:

li $v0, 4

la $a0, prompt1

syscall

li $v0, 5

syscall

move $t0, $v0

li $v0, 4

la $a0, prompt2 syscall

li $v0, 5

syscall

move $t1, $v0

div $t0, $t1

mfhi $t2

beq $t2, $zero, factor\_found

li $v0, 1

move $a0, $t2 # move remainder to $a0

syscall

li $v0, 10

li $a0, 1

syscall

factor\_found:

li $v0, 1

li $a0, 0

syscall

li $v0, 10

li $a0, 0

syscall