**Name:** Thanh Tam Vo

**StudentID:** 103487596

**COS10004 - Computer Systems – Lab 7 Submission**

## Question 16

## Question 16.1: Lines of code that establish the base address of the GPIO registers

## BASE=$3F000000

## GPIO\_OFFSET=$200000

## mov r0,BASE

## orr r0,GPIO\_OFFSET

## We firstly set two constants: BASE and GPIO\_OFFSET.

## The *mov* command will perform putting the value of BASE to the register 0

## The orr command now made register 0 be equal to $3F200000

## Question 16.2: Lines of code that program GPIO18 for writing

## mov r1,#1

## lsl r1,#24

## str r1,[r0,#4]

## Question 16.3: Lines of code that set GPIO to ON

## mov r1,#1

## lsl r1,#18

## str r1,[r0,#28]

## Question 16.4 Lines of code that stop the instruction

## loop$:

## b loop$ ;loop forever

## Question 19

## Question 19.1

## ;Program GPIO23 for writing

## mov r1,#1

## lsl r1,#9

## str r1,[r0,#8]

## ;Setting it on

## mov r1,#1

## lsl r1,#23 ;GPIO 23

## str r1,[r0,#28] ;correct

## Question 19.2

## ;mov r1,#1

## ;lsl r1,#23

## ;str r1,[r0,#40]

## Question 20

## Question 20.1

## Number bit set 9-11 are enable GPIO23 for writing

## Question 20.2

## Register 8 so we begin with offset #8

## Question 20.3

## Bit set 23 is responsible for turning the LED at GPIO23 on

## Question 20.4

## Offset #40

## Question 22

## I decided to turn the LED at GPIO23 off, here is the lines of code to turn it off

## mov r1,#1

## lsl r1,#23

## str r1,[r0,#40]