Name:
Answers in Italic
Student No:

(1) Determine the 32 bit result of each of the following:
0x1234ABCD AND 0xE14390AB = *0x00008089*
0x514A71E9 XOR (NOT 0x8A01213B) = *24B4AF2D*
0xAA5533CC >> 2 = *0x2a954cf3* [6]

(2) Exactly how many bytes are in each of the following?
2 KiB = *2 x 1024 = 2048*
5 MiB = *5242880*
2.5 GiB = *2684354560*
[6]
(Note the 'i' implies the units are in integer powers of 2)

(3) What value must be written to the the GPIO0DIR register to make bits 3,4,9 outputs, all other bits inputs:
GPIO0DIR= *0x218* [4]

(4) What line of C-code will set BIT 6 of GPIO0DATA without affecting other bits (states of other bits are not known) [4]

(5) What line of C-code will clear BIT 4 of GPIO0DATA without affecting other bits (states of other bits are not known) [4]
GPIO0DATA= GPIO0DATA & ~BIT4

(6) What line of C-code will wait for bit 2 GPIO0DATA to become '1' the states of other bits are not known [4]
while((GPIO0DATA & BIT2)==0);

(7) On the reverse of this page, sketch a block diagram of a hardware based timing system that can be used to generate a musical tone. Write a 2 line explanation of how this works. ***(see notes)***
[8]

(8) A serial communications link operates at 19200 bits per second. The data transfer format is 8 Data bits, 1 stop bits and 1 start bit. How long will it take this link to transfer 2000 bytes?
Data transfer rate in bytes = 19200/10 = 1920 bytes / s
2000 bytes will take 2000/1920 = 1.04

(9) What is meant by each of the following terms:
Interrupt Vector Table
Interrupt Service Routine

[4]

Interrupt Vector table is an ordered set of pointers that point to interrupt service routines.
An Interrupt service routine is a block of code that is executed in response to an interrupt