**CS2106 Operating Systems**

**Assignment 2 – Processes and Threads**

**Answer Book**

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Question 1

This is what I see on the screen: Parent sent message: Hello child! and 128

My single statement description is: This program allows a parent process to send a message to child process.

Question 2

The sizeof function returns the size (in bytes) of the argument passed to it

Question 3

My completed code is attached below:

Question 4

The threads print out of order. The reason is that the creation of a thread does not guarentee that it is executed immediately after that.

Question 5

The threads do share memory. Referring to ctr, I conclude this because the value of ctr in different cases is not just 0/1, but also 2,3...8,9.

Question 6

The values of ctr as printed by the threads are wrong. The reason is sometimes the threads are pre-empted before they can increment ctr.

Question 7

The variable "i" must be cast into void \* because the argument type for the start routine can be anything, and this is supported by simply passing a pointer holding the address of the argument, as opposed to passing the argument itself.

In child it does not have to be cast back into int because the parent never passes anything other than an int.

Question 8

The changes I made are to include a ‘pthread\_join’ call to the ‘i’th thread immediately after it has been created. This ensures that no thread ‘i’ executes before the ‘i-1’th thread has been executed.

My code is attached here:

pthread\_join(thread[i], NULL);

Question 9

The value of glob printed by main is 20

Question 10

The changes we made are...

Question 11

The value printed is corrrect/incorrect. This is because...

Question 12

The threads now update glob correctly/incorrectly. This is because...

Question 13

The changes we made were...

Our program is attached below: