**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: The program forks out into 2 processes. The parent writes to the child the message of “Hello Child” and number 128. The child reads the message and prints it out.

Question 2

The sizeof function returns the number of bytes in an integer which is 4.

Question 3

My completed code is attached below:

Question 4

The threads print in out of order. The reason is the threads finishes at different time.

Question 5

The threads do share memory. Referring to ctr, I conclude this because the ctr was added to about the value of 8 – 9. If they do not share memory the ctr should ideally be 1 based on the code.

Question 6

The values of ctr as printed by the threads are incorrect. The reason is the threads are not running sequentially, some threads run before the others which causes the ctr to be incorrectly printed by child threads.

Question 7

The variable "i" must be cast into void \* because the argument for pthread\_create requires void \* pointer.

In child it does not have to be cast back into int because void \* pointer points to raw data and printf is told by us that the way to display that raw data is in the integer format.

Question 8

The changes I made are...

My code is attached here:

Question 9

The value of glob printed by main is 20

Question 10

The changes we made are pthread\_create.

Question 11

The value printed is incorrect. This is because the threads are entering into each others’ critical section thus causing a race condition. This causes the value to not be correct.

Question 12

The threads now update glob incorrectly. This is because the wake up signal from sleep is lost. This causes the threads to sleep and thus not complete the latter half of the code.

Question 13

The changes we made were...

Our program is attached below: