

COMP3520 Operating Systems Internals

Assignment 1

Part 2 Marking Scheme

Discussion Document

Each question is allocated a set number of points, reflecting its relative importance. The total number of points that you obtain determines your concepts performance band. In addition, a grade is assigned for appropriate use of *Academic English*.

Your concepts performance band and *Academic English* grade collectively determine your Assignment 1 discussion document mark.

Question 1

Criteria	Points
• Explains the purpose of a condition variable	1
• Performance does not meet the criteria above	0

Question 2

Criteria	Points
• Provides a valid explanation on why calling <code>pthread_cond_wait()</code> in the context of the question is an error	1
• Performance does not meet the criteria above	0

Question 3

Criteria	Points
<ul style="list-style-type: none"> • Describes, in detail, ONE plausible scenario where it is reasonable to use the <code>pthread_cond_timedwait()</code> function • Provides adequate justification 	3
<ul style="list-style-type: none"> • Describes ONE plausible scenario where it is reasonable to use the <code>pthread_cond_timedwait()</code> function AND • Provides some justification <p>OR</p> <ul style="list-style-type: none"> • Describes, in detail, ONE plausible scenario where it is reasonable to use the <code>pthread_cond_timedwait()</code> function AND • Provides minimal justification 	2
<ul style="list-style-type: none"> • Outlines ONE plausible scenario where it is reasonable to use the <code>pthread_cond_timedwait()</code> function • Provides minimal justification 	1
• Performance does not meet the criteria above	0

Question 4

Criteria	Points
<ul style="list-style-type: none"> Thoroughly describes, in English and pseudocode, the algorithm that was implemented to solve the traffic light synchronization problem Provides detailed justification of the algorithm 	7
<ul style="list-style-type: none"> Provides a detailed description, in English and pseudocode, of the algorithm that was implemented to solve the traffic light synchronization problem Provides sound justification of the algorithm 	6
<ul style="list-style-type: none"> Provides an adequate description, in English and pseudocode, of the algorithm that was implemented to solve the traffic light synchronization problem Provides some justification of the algorithm 	5
<ul style="list-style-type: none"> Provides a basic description, in English and/or pseudocode, of the algorithm that was implemented to solve the traffic light synchronization problem Provides minimal justification of the algorithm 	4
<ul style="list-style-type: none"> Provides a limited description, in English and/or pseudocode, of the algorithm that was implemented to solve the traffic light synchronization problem 	3
<ul style="list-style-type: none"> Outlines, in English and/or pseudocode, some aspects of the algorithm that was implemented to solve the traffic light synchronization problem 	2
<ul style="list-style-type: none"> Makes general statements about synchronization concepts in the context of developing a multithreaded algorithm / program to solve the traffic light synchronization problem 	1
<ul style="list-style-type: none"> Performance does not meet the criteria above 	0

Question 5

Criteria	Points
<ul style="list-style-type: none"> Provides a detailed description of the methods that were used to debug the program to solve the traffic light synchronization problem Provides relevant input data, the resulting output of the program and the expected output for a representative range of test cases 	8
<ul style="list-style-type: none"> Provides a detailed description of the methods that were used to debug the program to solve the traffic light synchronization problem AND Provides relevant input data, the resulting output of the program and the expected output for THREE or more test cases AND <p>OR</p> <ul style="list-style-type: none"> Provides an adequate description of the methods that were used to debug the program to solve the traffic light synchronization problem AND Provides relevant input data, the resulting output of the program and the expected output for a representative range of test cases 	7
<ul style="list-style-type: none"> Provides an adequate description of the methods that were used to debug the program to solve the traffic light synchronization problem 	6

<ul style="list-style-type: none"> Provides relevant input data, the resulting output of the program and the expected output for THREE or more test cases 	
<ul style="list-style-type: none"> Provides a basic description of the methods that were used to debug the program to solve the traffic light synchronization problem Provides relevant input data, AND the resulting output of the program or the expected output for THREE or more test cases 	5
<ul style="list-style-type: none"> Provides a limited description of the methods used to debug the program to solve the traffic light synchronization problem AND Provides relevant input data, AND the resulting output of the program or the expected output for one or more test cases <p>OR</p> <ul style="list-style-type: none"> Outlines the methods used to debug the program to solve the traffic light synchronization problem AND Provides relevant input data, AND the resulting output of the program or the expected output for THREE or more test cases 	4
<ul style="list-style-type: none"> Outlines the methods used to debug the program to solve the traffic light synchronization problem AND Provides relevant input data, AND the resulting output of the program or the expected output for one or more test cases <p>OR</p> <ul style="list-style-type: none"> Provides relevant input data, AND the resulting output of the program or the expected output for THREE or more test cases 	3
<ul style="list-style-type: none"> Outlines the methods used to debug the program to solve the traffic light synchronization problem <p>OR</p> <ul style="list-style-type: none"> Provides relevant input data, AND the resulting output of the program or the expected output for one or more test cases 	2
<ul style="list-style-type: none"> Provides relevant input data, the resulting output of the program or the expected output for one or more test cases <p>OR</p> <ul style="list-style-type: none"> Makes general statements about debugging in the context of multithreaded programs or the traffic light synchronization problem 	1
<ul style="list-style-type: none"> Performance does not meet the criteria above 	0

Use of Academic English

Criteria	Grade
<ul style="list-style-type: none"> • Demonstrates excellent skills in using <i>Academic English</i> • Skilfully uses language that is always or nearly always correct and appropriate to audience, purpose and context with no or very infrequent minor lapses • Makes a genuine attempt at all questions 	A
<ul style="list-style-type: none"> • Demonstrates well-developed skills in using <i>Academic English</i> • Uses comprehensible language that is correct and appropriate to audience, purpose and context, possibly with infrequent minor lapses • Makes a genuine attempt at questions worth in excess of 75 % of the available points 	B
<ul style="list-style-type: none"> • Demonstrates satisfactory skills in using <i>Academic English</i> • Uses comprehensible language that is mostly correct and appropriate to audience, purpose and context, possibly with occasional spelling errors and/or occasional grammatical errors and/or infrequent use of colloquialisms • Makes a genuine attempt at questions worth in excess of 50 % of the available points 	C
<ul style="list-style-type: none"> • Demonstrates limited skills in using <i>Academic English</i> AND • Does ONE of the following: <ul style="list-style-type: none"> ○ Uses mostly comprehensible language that is appropriate to audience, purpose and context but possibly with substantial spelling errors and/or grammatical errors OR ○ Uses mostly comprehensible language that is usually but not always appropriate to audience, purpose and context due to frequent use of colloquialisms and/or infrequent inappropriate use of non-English words <p>OR</p> <ul style="list-style-type: none"> • Demonstrates basic skills in using <i>Academic English</i> AND • Uses comprehensible language that is mostly or always correct and appropriate to audience, purpose and context, possibly with occasional spelling errors and/or occasional grammatical errors and/or infrequent use of colloquialisms AND • Fails to make a genuine attempt at questions worth in excess of 50 % of the available points 	D
<ul style="list-style-type: none"> • Demonstrates elementary skills in using <i>Academic English</i> • Uses language that is frequently confusing and possibly inappropriate to audience, purpose and context due to spelling errors, grammatical errors, and/or use of colloquialisms and/or inappropriate use of non-English words to an extent that it substantially impedes understanding 	E
<ul style="list-style-type: none"> • Refused credit by the COMP3520 examiner due to persistent failure to make a serious attempt at using <i>Academic English</i>, e.g. by very frequent use of colloquialisms, excessive use of hybridized forms of English that are substantially influenced by non-English grammar, or frequently and blatantly inappropriate use of non-English words 	N

