

CSCI 431: *Programming Languages*
Final Exam -- closed book section

The entire exam is to be turned in at 5:35 PM. Work the closed book section first and turn it in before you consult your books and notes to work on the open book section.

Name: _____

Section 1. (24 points)

There are twelve questions. Each is worth two points. Choose the most appropriate phrase for terminating each sentence. Circle your choice.

The LISP operator for retrieving the first element of a list is

- A: head.
- B: car.
- C: cdr.
- D: cons.

The LISP operator for assigning a value to a variable is

- A: bind.
- B: gets.
- C: setq.
- D: replacd.

One fairly popular variant of LISP used to teach programming is

- A: Prolog.
- B: Scheme.
- C: ML.
- D: Sequel.

The two major data structures for synchronization of Pthreads are

- A: semaphores and queues.
- B: locks and condition variables.
- C: locks and semaphores.
- D: queues and condition variables.

The Pthread operator that waits until a particular thread terminates is

- A: pthread_wait.
- B: pthread_terminate.
- C: pthread_exit.
- D: pthread_join.

C's nearest equivalent to Pascal's variant record is

- A: the switch statement.
- B: the struct construct.
- C: the define statement.
- D: the union construct.

When Ada tasks *rendezvous*, the server is executing

- A: an RPC (remote procedure call).
- B: an entry.
- C: a coroutine.
- D: a get operation.

When a Pthread is created, it begins execution

- A: at the statement following the call to pthread_create.
- B: in pthread_init.
- C: in a file open by the pthread_create call.
- D: at a procedure passed as a argument to the pthread_create call.

The name of the C++ compiler on the workstations is

- A: cpp.
- B: c++.
- C: g++.
- D: cc.

When an Ada server task is willing to execute client requests of different types, it executes

- A: an accept statement.
- B: a connect statement.
- C: a select statement.
- D: a join statement.

True abstract data types are programming language modules that

- A: create new data types.
- B: contain several related procedures.
- C: define the semantics of procedure calls.
- D: join procedures and data definitions.

The first major high-level language to support records was

- A: COBOL.
- B: C.
- C: Pascal.
- D: Modula-2.

Section 2. (6 points)

List three *major* differences between Pascal and C.

(1),

(2),

(3),

Section 3. (4 points)

List two *major* difference between the implementations of abstract data types in Ada and C++.

(1),

(2),

Section 4. (6 points)

How do you write the string ```Hello World"` to standard output in the three following languages?

(1), Ada.

(2), Pascal.

(3), C++, but *not* in C, that is `printf`, `puts`, *etc.*, don't count.