

CS 3723: Programming Languages

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You Name:

1. Which of the following belong to the runtime machine model of a compiled program?
For each component, if applicable, indicate a corresponding component in the Scheme abstract machine that serves an equivalent purpose.
 - (a) The code space, which contains all instructions of the program to be evaluated.
 - (b) The program pointer, which points to the current instruction being evaluated.
 - (c) The runtime stack, which contains the values for all variables in the program.
 - (d) The environment pointer, which points to the top of the runtime stack.
 - (e) The parser and lexical analyzer
 - (f) The heap, which contains the dynamically allocated storages.
2. Which of the following statements about *blocks* are incorrect?
 - (a) A block is a region of code that introduces new variables.
 - (b) The scope of each variable is the block that creates it
 - (c) Blocks are nested but can also be overlapped, e.g., when using goto statements.
 - (d) When a block is entered, a storage must be allocated for each new variable;
 - (e) When a block is exited, all storages for its variables must be freed.