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**NORTH AMERICAN
UNIVERSITY**
INSPIRATION INNOVATION GLOBAL COMPETENCE



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Dashboard > My courses > COMP > COMP 3320.Programming Languages.2017SPR.s1 > 1 May - 7 May > Final Exam, May 3rd @1pm

Started on	Wednesday, 3 May 2017, 1:00 PM
State	Finished
Completed on	Wednesday, 3 May 2017, 1:16 PM
Time taken	15 mins 38 secs
Marks	38.33/40.00
Grade	95.83 out of 100.00

Question 1

Correct

Mark 1.00 out of 1.00

Which one of the following is not a criterion for a programming language evaluation?

Select one:

- ☐ a. Readability
- ☐ b. Cost
- ☐ c. Reliability
- ☐ d. Writability
- ☒ e. Age ✓

Your answer is correct.

The correct answer is: Age

Question 2

Correct

Mark 1.00 out of 1.00

Operational semantics deals with the effects of running a program on a machine.

Select one:

- ☒ True ✓
- ☐ False

The correct answer is 'True'.

Question 3

Correct

Mark 1.00 out of 1.00

What does the following attribute grammar mean:

Syntax rule: `<fun_def> → function <fun_name>[1]`

`<fun_body> end <fun_name>[2];`

Predicate: `<fun_name>[1].string == <fun_name>[2].string`

Select one:

- ☐ a. Functions cannot be defined without variables
- ☐ b. Syntax rule should come before predicate rule when writing in that programming language
- ☒ c. The name on the end of a function must match the functions name ✓
- ☐ d. Functions should have two variables

Your answer is correct.

The correct answer is: The name on the end of a function must match the functions name

Question 4

Correct

Mark 1.00 out of 1.00

Dynamic semantics deals with the meaning of expressions, statements, and program units.

Select one:

- ☒ True ✓
- ☐ False

The correct answer is 'True'.

Question 5

Correct

Mark 1.00 out of 1.00

Parsing algorithms that work for any unambiguous grammar are complicated and inefficient. The complexity of those algorithms is _____.

Select one:

- ☐ a. $O(N)$
- ☒ b. $O(N^3)$ ✓
- ☐ c. $O(\log N)$
- ☐ d. $O(N^2)$

Your answer is correct.

The correct answer is: $O(N^3)$

Question 6

Correct

Mark 1.00 out of 1.00

A top-down parser builds a parse tree in _____.

Select one:

- ☒ a. preorder ✓
- ☐ b. inorder
- ☐ c. no order
- ☐ d. postorder

Your answer is correct.

The correct answer is: preorder

Question 7

Correct

Mark 1.00 out of 1.00

What is the front end of a syntax analyzer?

Select one:

- ☐ a. Attribute Grammars
- ☐ b. Semantic Analyzer
- ☒ c. Lexical analyzer ✓
- ☐ d. Context-free grammars

Your answer is correct.

The correct answer is: Lexical analyzer

Question 8

Correct

Mark 1.00 out of 1.00

A lexical analyzer is a pattern matcher.

Select one:

- ☒ True ✓
- ☐ False

The correct answer is 'True'.

Question 9

Correct

Mark 1.00 out of 1.00



Which operator has highest precedence in the following EBNF?

$\langle \text{expr} \rangle \rightarrow \langle \text{term} \rangle \{ (+ \mid -) \langle \text{term} \rangle \}$

$\langle \text{term} \rangle \rightarrow \langle \text{factor} \rangle \{ (* \mid /) \langle \text{factor} \rangle \}$

$\langle \text{factor} \rangle \rightarrow \text{id} \mid \text{int_constant} \mid (\langle \text{expr} \rangle)$

Select one:

- ☐ a. Addition and Subtraction
- ☐ b. Division
- ☒ c. Multiplication and Division ✓
- ☐ d. Addition

Your answer is correct.

The correct answer is: Multiplication and Division

Question 10

Correct

Mark 1.00 out of 1.00

Assume the following non-terminals are given: <type>, <id>, <literal>, <assign>, <expr>, and <stmt_list>.

Which of following cannot be written with this grammar:

<for> -> for '(' [[<type>] <id> = <expr> {, [<type>] <id> = <expr>}] ; [<expr>] ;
[<expr> {, <expr>}] ')' '{' <stmt_list> '}'

Select one:

- ☒ a.
for (i = 0, i < n, i++);
{
 a = a + 1;
} ✓
- ☐ b. for (int k = 0, m = 100; k < n; k++, m++)
{
 a = a + 1;
}
- ☐ c.
for (int i = 0; i < k; i++)
{
 a = a * 2;
}
- ☐ d.
for (int i = 0; i < n; i++)
{
 a = a + 2;
}

Your answer is correct.

The correct answer is:

```
for ( i = 0, i < n, i++);  
{  
    a = a + 1;  
}
```

Question 11

Correct

Mark 1.00 out of 1.00

An explicit declaration is a program statement used for declaring the types of variables.

Select one:

- ☒ True ✓
- ☐ False

The correct answer is 'True'.


Question 12

Correct

Mark 1.00 out of 1.00

Which one of the following is not correct?

Select one:

- ☐ a.
The scope of a variable is the range of statements over which it is visible.
- ☒ b.
Global variables are a special category of local variables

- ☐ c.
The nonlocal variables of a program unit are those that are visible in the unit but not declared there.
- ☐ d.
The local variables of a program unit are those that are declared in that unit.

Your answer is correct.

The correct answer is:

Global variables are a special category of local variables

Question 13

Correct

Mark 1.00 out of 1.00

Which one of the following is not a design issue of names?

Select one:

- ☒ a. Scope ✓
- ☐ b. Special words
- ☐ c. Reserved words
- ☐ d. Case sensitivity

Your answer is correct.

The correct answer is: Scope

Question 14

Correct

Mark 1.00 out of 1.00

All variables have names.

Select one:

- ☐ True
- ☒ False ✓

The correct answer is 'False'.

Question 15

Correct

Mark 1.00 out of 1.00

If two variable names can be used to access the same memory location, they are called _____.

Select one:

- ☒ a. Aliases ✓
- ☐ b. Static
- ☐ c. Reserved
- ☐ d. Dynamic

Your answer is correct.

The correct answer is: Aliases

Question 16

Correct

Mark 1.00 out of 1.00

Which one is not a primitive data type?

Select one:

- ☐ a. float
- ☒ b. struct ✓
- ☐ c. char
- ☐ d. int

Your answer is correct.

The correct answer is: struct

Question 17

Correct

Mark 1.00 out of 1.00

A heterogeneous array is one in which the elements need not be of the same type.

Select one:

- ☒ True ✓
- ☐ False

The correct answer is 'True'.

Question 18

Correct

Mark 1.00 out of 1.00

Decimal data type has more _____ and a smaller _____.

Select one:

- ☐ a. value, precision
- ☐ b. range, precision
- ☐ c. range, value
- ☒ d. precision, range ✓

Your answer is correct.

The correct answer is: precision, range

Question 19

Correct

Mark 1.00 out of 1.00

A _____ is some substructure of an array; nothing more than a referencing mechanism.

Select one:

- ☒ a. slice ✓
- ☐ b. record
- ☐ c. pointer
- ☐ d. none of them

Your answer is correct.

The correct answer is: slice

Question 20

Correct

Mark 1.00 out of 1.00

```
%hi_temps = ("Mon" => 77, "Tue" => 79, "Wed" => 65, ...);
```

What is this data type?

Select one:

- ☒ a. Associative array ✓
- ☐ b. Array
- ☐ c. Record
- ☐ d. Tuple

Your answer is correct.

The correct answer is: Associative array

Question 21

Correct

Mark 1.00 out of 1.00

Which one is not a way that a child can differ from its parent?

Select one:

- ☐ a. The parent class can define some of its variables or methods to have private access, which means they will not be visible in the subclass
- ☐ b. The subclass can modify the behavior of one or more of its inherited methods.
- ☒ c. The subclass can inherit only selected methods of its parent. ✓
- ☐ d. The subclass can add variables and/or methods to those inherited from the parent

Your answer is correct.

The correct answer is: The subclass can inherit only selected methods of its parent.

Question 22

Correct

Mark 1.00 out of 1.00

Which one is a pure Object Oriented Language?

Select one:

- ☐ a. Java
- ☐ b. Lisp
- ☐ c. C++
- ☒ d. Smalltalk ✓

Your answer is correct.

The correct answer is: Smalltalk

Question 23

Correct

Mark 1.00 out of 1.00

Polymorphism is the ability to present the same interface for different underlying data types (forms).

Select one:

- ☒ True ✓
- ☐ False

The correct answer is 'True'.

Question 24

Incorrect

Mark 0.00 out of 1.00

Match the following:

A class that inherits

methods



Class instances

derived class or a subclass



The class from which another class inherits

objects



Subprograms that define operations on objects
are called

parent class or superclass



Your answer is incorrect.

The correct answer is:

A class that inherits

→ derived class or a subclass, Class instances → objects, The class from which another
class inherits → parent class or superclass, Subprograms that define operations on
objects are called → methods

Question 25

Correct

Mark 1.00 out of 1.00

Calls to methods are called messages.

Select one:

- ☒ True ✓
- ☐ False

The correct answer is 'True'.

Question 26

Correct

Mark 1.00 out of 1.00

Lambda expressions describe _____ functions.

Select one:

- ☐ a. logic
- ☐ b. none of them
- ☐ c. repetitive
- ☒ d. nameless ✓

Your answer is correct.

The correct answer is: nameless

Question 27

Correct

Mark 1.00 out of 1.00

Efficiency is the primary concern in _____ languages.

Select one:

- ☐ a. Functional
- ☒ b. Imperative ✓
- ☐ c. Strongly typed
- ☐ d. High-level

Your answer is correct.

The correct answer is: Imperative

Question 28

Correct

Mark 1.00 out of 1.00

The design of the functional languages is based on mathematical functions.

Select one:

- ☒ True ✓
- ☐ False

The correct answer is 'True'.

Question 29

Correct

Mark 1.00 out of 1.00

Different from most other functional languages in that it is purely functional.

Select one:

- ☐ a. Erlang
- ☐ b. Common-Lisp
- ☐ c. F#
- ☒ d. Haskell ✓

Your answer is correct.

The correct answer is: Haskell

Question 30

Correct

Mark 1.00 out of 1.00

A functional programming language uses recursion rather than repetition.

Select one:

- ☒ True ✓
- ☐ False

The correct answer is 'True'.

Question 31

Correct

Mark 1.00 out of 1.00

A proposition is a logical statement.

Select one:

- ☒ True ✓
- ☐ False

The correct answer is 'True'.

Question 32

Correct

Mark 1.00 out of 1.00

Variables in logic programming languages and imperative languages are same.

Select one:

- ☐ True
- ☒ False ✓

The correct answer is 'False'.

Question 33

Correct

Mark 1.00 out of 1.00

What is the output of the following code:

```
likes(jake,chocolate).
```

```
likes(jake, apricots).
```

```
likes(jake, apples).
```

```
likes(darcie, licorice).
```

```
likes(darcie, apples).
```

```
likes(jake, X), likes(darcie, X).
```

X = ?

Select one:

- ☐ a. licorice
- ☐ b. appricots
- ☒ c. apples ✓
- ☐ d. chocolate

Your answer is correct.

The correct answer is: apples

Question 34

Correct

Mark 1.00 out of 1.00

Match the following:

disjunction ✓

conjunction ✓

negation ✓

Your answer is correct.

The correct answer is: disjunction → \vee , conjunction → \wedge , negation → \neg

Question 35

Partially correct

Mark 0.33 out of 1.00

parent(bill, sarah).

parent(bill, oliver).

sibling(X,Y) :- (parent(M,X), parent(M,Y), not(X=Y)).

Which one of the following will return true? (Select all that applies)

Select one or more:

- ☐ a.
sibling(bill,oliver).
- ☒ b.
sibling(sarah,oliver). ✓
- ☒ c.
sibling(sarah,sarah). ✗
- ☒ d.
sibling(oliver,oliver). ✗

Your answer is partially correct.

You have selected too many options.

The correct answer is:

sibling(sarah,oliver).

Question 36

Correct

Mark 1.00 out of 1.00

JIT (Just-in-Time) compilers are widely used for Java programs.

Select one:

- ☒ True ✓
- ☐ False

The correct answer is 'True'.

Question 37

Correct

Mark 1.00 out of 1.00

What is the legendary programming language that is especially used for scientific calculations?

Select one:

- ☐ a. Algol
- ☐ b. Cobol
- ☐ c. Scitran
- ☐ d. AWK
- ☒ e. Fortran ✓

Your answer is correct.

The correct answer is: Fortran

Question 38

Correct

Mark 1.00 out of 1.00

The following grammar is ambiguous:

$$\langle S \rangle \rightarrow \langle A \rangle$$
$$\langle A \rangle \rightarrow \langle A \rangle + \langle A \rangle \mid \langle \text{id} \rangle$$
$$\langle \text{id} \rangle \rightarrow a \mid b \mid c$$

Select one:

- ☒ True ✓
- ☐ False

The correct answer is 'True'.

Question 39

Correct

Mark 1.00 out of 1.00

The sentences of the language are generated through a sequence of applications of the rules, beginning with a special nonterminal of the grammar called the start symbol. This sequence of rule applications is called a derivation.

Select one:

- ☒ True ✓
- ☐ False

The correct answer is 'True'.

Question 40

Correct

Mark 1.00 out of 1.00

A grammar that generates a sentential form for which there are two or more distinct parse trees is said to be _____.

Select one:

- ☐ a. readable
- ☒ b. ambiguous ✓
- ☐ c. unambiguous
- ☐ d. flexible

Your answer is correct.

The correct answer is: ambiguous