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

Select one:

a. Cobol

b. AWK

c. Algol

d. Fortran

e. Scitran

What is the legendary programming language that is especially used for AI?

Select one:

a. Lisp

b. Fortran

c. AWK

d. Pascal

e. Algol

Which language used orthogonality as a primary design criterion?

Select one:

a. FORTRAN

b. LISP

c. ALGOL

d. Python

e. JAVA

Please match the steps for Hybrid Implementation process.

|  |  |
| --- | --- |
| Step 2 | Answer 1 |
| Step 4 | Answer 2 |
| Step 6 | Answer 3 |
| Step 3 | Answer 4 |
| Step 1 | Answer 5 |
| Step 5 | Answer 6 |

What is the legendary programming language that is especially used for business purposes?

Select one:

a. AWK

b. Pascal

c. Fortran

d. Cobol

e. Algol

In what language is most of UNIX written?

Select one:

a. Python

b. C++

c. Cobol

d. Java

e. C

Which one is not correct about Zuse's Plankalkul?

Select one:

a. Has advanced data structures

b. Has invariants

c. Designed in 1945

d. Implemented in 1972

Why source code usage was developed instead of using object/machine code?

Select one:

a. All of them

b. Machine code has poor readability

c. Machine code has no indexing

d. Machine code was hard to modify

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ first used in Fortran IV.

Select one:

a. All

b. Pointers

c. Explicit data type declarations

d. Arrays

If ( a > b )   
   print "Yes"  
else  
   print "No"

This logic had been implemented in which programming language first?

Select one:

a. Fortran

b. C

c. APL

d. ALGOL

e. Speedcoding

Which programming language was designed for IBM 704 machine that takes advantage of the floating point hardware calculations instead of software calculations.

Select one:

a. Smalltalk

b. Algol

c. Fortran

d. C

e. Java

What is the first AI language?

Select one:

a. LISP

b. FORTRAN

c. PYTHON

d. JAVA

What is the first Programming Language?

a. Fortran I

b. Algol 58

c. APL

d. Zuse's Plankalkul

If ( a > b )   
   print "Yes"  
This logic had been implemented in which programming language first? (conditional branching)

Select one:

a. ALGOL

b. Speedcoding

c. Fortran

d. APL

e. C

\_\_\_\_\_\_\_ is non-procedural and based on formal logic.

Select one:

a. Lisp

b. Ada

c. Prolog

d. Algol

e. C

\_\_\_\_\_\_\_ designed for teaching structured programming.

Select one:

a. C

b. Fortran

c. Pascal

d. Snobol

e. Ada

Which programming language had the following design goals?

* Must be "pleasant and friendly"
* User time is more important than computer time
* Easy to learn for non-science students

Select one:

a. LISP

b. Basic

c. JAVA

d. Fortran I

Which programming language specifically had the following contibutions?

* First unit-level concurrency
* First exception handling
* Switch-selectable recursion
* First pointer data type
* First array cross sections

Select one:

a. ALGOL

b. BASIC

c. COBOL

d. PL/I

Which language had the following contributions specifically?

* Packages
* Generic program units
* Concurrency

Select one:

a. Fortran

b. Ada

c. Java

d. Algol

e. C

A metalanguage  is a language that is used to describe another language. BNF is a metalanguage for programming languages.

Select one:

True

False

What is the lowest level syntactic unit?

Select one:

a. EBNF

b. lexeme

c. grammar

d. BNF

The following grammar cannot produce?

<assign> → <id> = <expr>

<id> → A | B | C

<expr> → <expr> + <term>

| <term>

<term> → <term> \* <factor>

| <factor>

<factor> → ( <expr> )

| <id>

Select one:

a. A = ( B+B ) \* C

b. A = ( A+B ) \* C

c. A = ( A+B ) \* 3

d. C = ( A+ (C + C) ) \* C

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

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

Select one:

a. ambiguous

b. unambigious

c. flexible

d. readable

Why should we study programming languages?

Select one:

a. To increase our capacity to use different constructs

b. To be able to learn new languages more efficiently

c. To be able to select languages more effectively

d. All of them

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

Select one:

True

False

In the following grammar we can say that:

<assign> → <id> = <expr>

<id> → A | B | C

<expr> → <expr> + <term>

| <term>

<term> → <term> \* <factor>

| <factor>

<factor> → ( <expr> )

| <id>

Select one:

a. + has precedence over \*

b. + and \* have same precedence

c. \* has precedence over +

d. we cannot say anything about their precedence

The following grammar is ambiguous:

<S> →  <A>

<A> →  <A> +  <A> |  <id>

<id> →  a |  b |  c

Select one:

True

False

Operator precedence can be achieved in \_\_\_\_\_\_\_\_\_\_\_\_ grammars.

Select one:

a. ambiguous

b. BNF

c. non-ambiguous

d. token

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

Select one:

True

False

For which one of the following we do not need attribute grammars?

a. To check ambiguity

b. To find synthesized attributes

c. To find inherited attributes

d. To find intrinsic attributes

Type compatibility can be checked in context-free grammars.

Select one:

True

False

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

Select one:

True

False

A(n) \_\_\_\_\_\_\_\_\_\_\_\_\_\_ is a device used to describe more of the structure of a programming language than can be described with a context-free- grammar.

Select one:

a. recognizer

b. attribute grammar

c. Extended BNF

d. static semantics

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

a. Functions should have two variables

b. Syntax rule should come before predicate rule when writing in that programming language

c. Functions cannot be defined without variables

d. The name on the end of a function must match the functions name

A recursive-descent parser is a coded version of a syntax analyzer based directly on the BNF description of the syntax of language.

Select one:

True

False

Parsing algorithms that work for any unambigious grammar are complicated and inefficient. The complexity of those algorithms is \_\_\_\_\_\_\_\_\_.

Select one:

a. O(N3)

b. O(N2)

c. O(log N)

d. O(N)

There are three reasons why lexical analysis is separated from syntax analysis. Which one of the following is not one of them?

Select one:

a. Efficiency

b. Portability

c. Cost

d. Simplicity

A lexical analyzer is a pattern matcher.

Select one:

True

False

Syntax analysis is often called parsing.

Select one:

True

False

EBNF is ideally suited for recursive-descent parsers.

Select one:

True

False

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 (int i = 0;  i < n;  i++)  
{  
            a = a + 2;  
}

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

c.   
for (int i = 0;  i < k;  i++)  
{  
            a = a \* 2;  
}

d. for (int k = 0, m = 100;  k < n;  k++, m++)  
{  
            a = a + 1;  
}

Which operator has highest precedence in the following EBNF?  
<expr> → <term> {(+ | -) <term>}  
<term> → <factor> {(\* | /) <factor>}  
<factor> → id | int\_constant | ( <expr> )

Select one:

a. Multiplication and Division

b. Division

c. Addition

d. Addition and Subtraction

﻿A recursive-descent parser is so named because it consists of a collection of subprograms, many of which are recursive, and it produces a parse tree in top-down order.

Select one:

True

False

\_\_\_\_\_ is designed for system programming.

Select one:

a. Fortran

b. C

c. Java

d. Pascal

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ first used in Fortran IV.

Select one:

a. Arrays

b. Explicit data type declarations

c. Pointers

d. All

What are the common characteristics of APL and SNOBOL?

Select one:

a. Dynamic typing and dynamic storage

b. Object oriented

c. Static typing and static storage

d. Orthogonal Design

A top-down parser builds a parse tree in \_\_\_\_\_\_\_\_.

Select one:

a. postorder

b. preorder

c. inorder

d. no order

Which one is the pure object oriented programming language?

Select one:

a. Smalltalk

b. Ada

c. Basic

d. Algol

e. Snobol

#### \_\_\_\_\_\_\_ designed for teaching structured programming.

Select one:

a. Ada

b. C

c. Snobol

d. Pascal

e. Fortran

What is the front end of a syntax analyzer?

Select one:

a. Semantic Analyzer

b. Attribute Grammars

c. Context-free grammars

d. Lexical analyzer

The following grammar cannot produce?

<assign> → <id> = <expr>

<id> → A | B | C

<expr> → <expr> + <term>

| <term>

<term> → <term> \* <factor>

| <factor>

<factor> → ( <expr> )

| <id>

Select one:

a. A = ( A+B ) \* C

b. A = ( B+B ) \* C

c. C = ( A+ (C + C) ) \* C

d. A = ( A+B ) \* 3

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

Select one:

a. Cost

b. Age

c. Writability

d. Reliability

e. Readability

The static semantics of a language deals with the syntax rather than semantics.

Select one:

True

False

Aliases are harmful to readability.

Select one:

True

False

Which one of the following is a possible binding time?

Select one:

a. Compile time

b. All of them

c. Language design time

d. Runtime

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

Select one:

a. Special words

b. Reserved words

c. Case sensitivity

d. Scope

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

Select one:

True

False

All variables have names.

Select one:

True

False

Which one of the following is not correct?

Select one:

a.

Global variables are a special category of local variables

b.

The scope of a variable is the range of statements over which it is visible.

c.

The local variables of a program unit are those that are declared in that unit.

d.

The nonlocal variables of a program unit are those that are visible in the unit but not declared there.

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

Select one:

a. Aliases

b. Dynamic

c. Static

d. Reserved

Match the correct ones:

|  |  |
| --- | --- |
| A binding is \_\_\_\_\_\_ if it first occurs before run time and remains unchanged throughout program execution. | Answer 1 |
| A binding is \_\_\_\_\_\_\_ if it first occurs during execution or can change during execution of the program. | Answer 2 |

Which one of the following is not an attribute of a variable?

Select one:

a. Name

b. Address

c. Lifetime

d. Recursive

e. Scope

f. Value

g. Type

Match the following:

|  |  |
| --- | --- |
| \_\_\_\_\_\_ defines the range of possible values for a variable | Answer 1 |
| The \_\_\_\_\_\_\_\_\_ of a variable is its address | Answer 2 |
| The \_\_\_\_\_\_\_\_\_ of a variable is its value | Answer 3 |

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

Select one:

True

False

Decimal data type has more \_\_\_\_\_\_ and a smaller \_\_\_\_\_\_\_\_.

Select one:

a. range, value

b. precision, range

c. value, precision

d. range, precision

Almost all programming languages provide a set of primitive data types.

Select one:

True

False

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

Select one:

a. none of them

b. pointer

c. record

d. slice

Which one is not a primitive data type?

Select one:

a. int

b. struct

c. char

d. float

A \_\_\_\_\_\_\_\_\_ defines a collection of data objects and a set of predefined operations on those objects.

Select one:

a. descriptor

b. floating point

c. data type

d. programming language

Primitive data type "boolean" is harmful to readibility.

Select one:

True

False

%hi\_temps = ("Mon" => 77, "Tue" => 79, "Wed" => 65, …);

What is this data type?

Select one:

a. Record

b. Tuple

c. Array

d. Associative array

String data type in C / C++ is primitive.

Select one:

True

False

Enumeration is aid to reliability because:

Select one:

a. All of them

b. no enumaration variable can be assigned a value outside its defined range

c. operations checked

d. aid to readibility

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

Select one:

True

False

Calls to methods are called messages.

Select one:

True

False

The entire collection of methods of an object is called its \_\_\_\_\_\_\_\_\_\_\_\_\_.

Select one:

a. inheritance

b. message interface

c.

message protocol

d. encapsulation

Question text

class base\_class {

  private:

    int a;

    float x;

  protected:

    int b;

    float y;

  public:

    int c;

    float z;

};

class subclass\_1 : public base\_class { … };

Which one is correct for subclass\_1 variables?

Select one:

a. all are public

b. all are protected

c. b,y are protected; c,z are public

d.   
b,y are private; c,z are protected

Match the following:

|  |  |
| --- | --- |
| Class instances | Answer 1 |
| The class from which another class inherits | Answer 2 |
| Subprograms that define operations on objects are called | Answer 3 |
| A class that inherits | Answer 4 |

Which one is a pure Object Oriented Language?

Select one:

a. C++

b. Smalltalk

c. Lisp

d. Java

A class can modify an inherited method.

Select one:

True

False

class base\_class {

  private:

    int a;

    float x;

  protected:

    int b;

    float y;

  public:

    int c;

    float z;

};

class subclass\_1 : private base\_class { … };

Which one is correct for subclass\_1 variables?

Select one:

a. all are protected

b. all are private

c.   
b,y are private; c,z are protected

d. b,y are protected; c,z are public

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

Select one:

a. The subclass can add variables and/or methods to those inherited from the parent

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 parent class can define some of its variables or methods to have private access, which means they will not be visible in the subclass

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

Select one:

True

False

Lambda expressions describe \_\_\_\_\_\_\_\_\_\_\_\_\_\_ functions.

Select one:

a. logic

b. nameless

c. repetitive

d. none of them

In a Functional Programming Language variables are not necessary.

Select one:

True

False

A functional programming language uses recursion rather than repetition.

Select one:

True

False

REPL means?

Select one:

a. read-evaluate-post loop

b. read-evaluate-push loop

c. read-execute-print loop

d. read-evaluate-print loop

LISP is the first widely known functional programming language.

Select one:

True

False

The design of the functional languages is based directly on the Von Neumann architecture.

Select one:

True

False

Efficiency is the primary concern in \_\_\_\_\_\_\_\_\_ languages.

Select one:

a. Imperative

b. Strongly typed

c. High-level

d. Functional

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

Select one:

a. Common-Lisp

b. Haskell

c. F#

d. Erlang

\_\_\_\_\_\_\_\_\_\_\_\_\_ functions are used for boolean.

Select one:

a. Recursive

b. List

c. Predicate

d. Flow

Logic programming languages uses \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ to produce results.

Select one:

a. logical inferencing

b. funtional logic

c. functional inferencing

d. procedural programming

Match the following:

|  |  |
| --- | --- |
| disjunction | Answer 1 |
| conjunction | Answer 2 |
| negation | Answer 3 |

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. apples

b. chocolate

c. licorice

d. appricots

Variables in logic programming languages and imperative languages are same.

Select one:

True

False

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(sarah,oliver).

b. 

sibling(bill,oliver).

c. 

sibling(sarah,sarah).

d. 

sibling(oliver,oliver).

A proposition is a logical statement.

Select one:

True

False

What is functor in this example?  
like(jim, linux)

Select one:

a. like

b. (jim, linux)

c. unix

d. jim

Which one of the following means if all A's are true then all B's are true.

a. B1 ∧ B2 ∧ … ∧ Bn ⊂ A1 ∧ A2 ∧ … ∧ Am

b. B1 ∧ B2 ∧ … ∧ Bn ⊄ A1 ∧ A2 ∧ … ∧ Am

c. B1 ∨ B2 ∨ … ∨ Bn ⊂ A1 ∧ A2 ∧ … ∧ Am

d. None of them

Match the following:

|  |  |
| --- | --- |
| There exists a value of X such that P is true | Answer 1 |
| For some X, P is not true | Answer 2 |
| For all X, P is true | Answer 3 |