

Question 1, lisp questions 3.21: (professor said to put this question here)

3.21:

1) (defun speak (x y) (list 'all 'x 'is 'y))

The expression (defun speak (x y) (list 'all 'x 'is 'y)) is wrong as the variables x and y are quoted in the function definition. The expression should be (defun speak (x y) (list 'all x 'is y))

2) (defun speak (x) (y) (list 'all x 'is y))

This expression is wrong because the way the parameters are formatted is wrong. Parameters should all be in the same parenthesis's. The correct expression is (defun speak (x y) (list 'all x 'is y))

3) (defun speak ((x) (y)) (list all 'x is 'y))

This expression has multiple errors in it. First the parameter variables need to be in the same parenthesis on the same level. Instead of ((x) (y)) it should be (x y). In the function definition the quotations are wrong. The symbols 'all' and 'is' should be quoted, while the variables x and y should not. The corrected expression is (defun speak (x y) (list 'all x 'is y))

Question 2, sebesta questions:

2. What two common data structures were included in Plankalkül?

Plankalkül Included array and record(struct) data structures.

3. Why was the slowness of interpretation of programs acceptable in the early 1950s?

This was because computers before the IBM 704 system lacked hardware for floating point. All floating-point operations had to be done in software. So since floating point had to be done in software, the slowness of computers was acceptable.

4. What hardware capability that first appeared in the IBM 704 computer strongly affected the evolution of programming languages? Explain why.

The main hardware capability was the floating-point hardware. The floating-point hardware could do floating point operations faster than any software. So this brought an end to the previous practice of using software to calculate floating point.

5. In what year was the Fortran design project begun?

Fortran design project began in May 1954.

6. What was the primary application area of computers at the time Fortran was designed?

The primary application area was scientific computations.

7. What was the source of all of the control flow statements of Fortran I?

All of the control flow statements of Fortran 1 came from the 704 system.

8. What was the most significant feature added to Fortran I to get Fortran II?

The most significant feature was the independent compilation of subroutines. This made compiling larger programs easier and made it more feasible to make larger programs.

9. What control flow statements were added to Fortran IV to get Fortran 77?

Fortran 77 had logical loop control statements, and an If statement with an optional else clause.

14. Why were linguists interested in artificial intelligence in the late 1950s?

Linguists were interested in artificial intelligence as it could facilitate natural language processing.

15. Where was Lisp developed? By whom?

Lisp was developed at MIT by John McCarthy.

20. What missing language element of ALGOL 60 damaged its chances for widespread use?

The lack of Input and output statements made programs difficult to port to other computers.

21. What language was designed to describe the syntax of ALGOL 60?

BNF was used to describe the syntax of ALGOL 60.

22. On what programming language was COBOL based?

COBOL was based on FLOW-MATIC.

23. In what year did the COBOL design process begin?

The design process begun in 1959.

24. What data structure that appeared in COBOL originated with Plankalkül?

Hierarchical data structures (a.k.a records) first appeared in Plankalkül.

25. What organization was most responsible for the early success of COBOL (in terms of extent of use)?

The United States department of defense (DOD) was most responsible for COBOL's early success. This was because the DOD mandated its use.

36. What is a nonprocedural language?

A nonprocedural language is written in a way that describes what a result should have, instead of how to compute a result. Nonprocedural languages specify the form and characteristics of a result.

37. What are the two kinds of statements that populate a Prolog database?

Facts and Rules statements populate a prolog database.

46. What was the first application for Java?

Java was first intended to be used for embedded consumer electronics. Java was made to be smaller, simpler, and more reliable than C and C++.

51. For what application area is JavaScript most widely used?

Javascript is most widely used in web browsers. Javascript was used to validate input data and create dynamic HTML documents.

52. What is the relationship between JavaScript and PHP, in terms of their use?

In web development, Javascript handles the client side (the user's browser), while php handles the web server.

57. What deficiency of the switch statement of C is addressed with the changes made by C# to that statement?

C#'s switch statement has a static semantics rule. This rule does not allow the implicit execution of more than one segment. This means that different cases of a switch cannot execute other code blocks without the programmer explicitly intending it to. This means that using a break statement is optional in C#.

59. What are the inputs to an XSLT processor?

An XSLT processor takes an input of an XML data document and an XSLT document.

60. What is the output of an XSLT processor?

The output of an XSLT processor can be in XML, HTML, and plain text.