From Sebesta Chapter 2 **review questions**: Questions 2, 5, 6 through 11, 14, 15, 20 through 25, 36, 37, 46, 51, 52, 57, 59, and 60

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

Arrays and records (called structs in C based languages)

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

Floating-point was done by software so interpretation expenses were acceptable.

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

The IBM 704 had both indexing and floating-point instruction in the hardware. This allowed the software to no longer be responsible for floating-point instructions. This led to FORTRAN.

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

May 1954

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

Mathematical formula translating (math).

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

It was based on 704 instructions.

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

Independent compilation of subroutines.

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

Fortran 77 added character string handling, logical loop control statements, and an If with an optional Else clause.

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

They were concerned with natural language processing.

15. Where was Lisp developed? By whom?

A summer position at the IBM Information Research Department in 1958 and developed by John McCarthy.

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

The lack of input and output statements in the language.

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

BNF

22. On what programming language was COBOL based?

FLOW-MATIC

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

1959

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

Hierarchical data structures (records)

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

Department of Defense (DoD).

36. What is a nonprocedural language?

Logic programming languages. They do not state exactly how a result is to be computed but rather describe the necessary form and/or characteristics of the result.

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

Facts and rules

46. What was the first application for Java?

Designed for an application for which there appeared to be no satisfactory existing language. The first specific use was embedded consumer electronic devices.

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

It was used for the web. HTML documents request sever side computations with results returned to the browser in the form of HTML documents

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

They both were used for web computations

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

Lack of "break" statements.

59. What are the inputs to an XSLT processor?

XML data document and an XSLT document.

60. What is the output of an XSLT processor?

XML document.