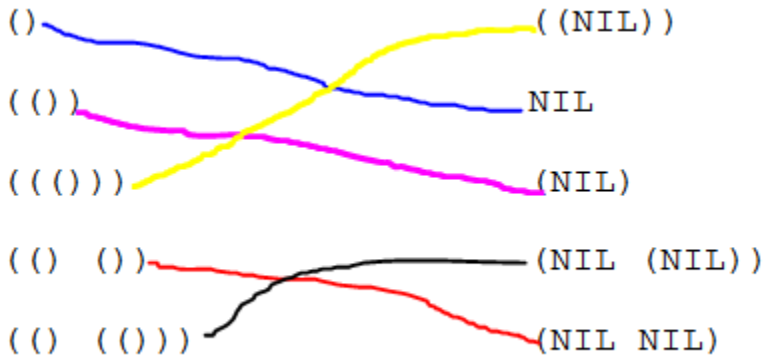
Question 1: Lisp Text, (2.2, 2.4, 2.6, 2.13, 2.15, 2.16)

2.2 The lists that are formed properly are 2. ((A) (B)), 5. (A (B (C))) and 6. (((A) (B)) (C))
2.4 ((BOWS ARROWS) (FLOWERS CHOCOLATES))
2.6



2.13
List: (((FUN)) (IN THE) (SUN))
Fun

Step	Result
C……AR	((FUN))
C….AAR	(FUN)
C….AAAR	FUN
CAAAR	

In

Step	Result
C….DR	((IN THE) (SUN))
C…..ADR	(IN THE)
C…..AADR	IN
CAADR	

The

Step	Result
C….DR	((IN THE) (SUN))
C…ADR	(IN THE)
C…DADR	(THE)
C…ADADR	THE
CADADR	

Sun

Step	Result
C…DR	((IN THE) (SUN))
C…DDR	((SUN))
C….ADDR	(SUN)
C…AADR	SUN
CAADDR	

2.15

List: ((A B) (C D) (E F))

FUNCTION	RESULT
CAR	(A B)
CDDR	(E F)
CADR	(C D)
CDAR	(B)
CADAR	B
CDDAR	NIL ?
CAAR	A
CDADDR	(F)
CADDDR	F

2.16
CAR of (FRED NIL) is FRED but the CAR would cause an error.

Question 2: Sebesta Qs 6-16, 20-25, 29
6. C
7. Feature multiplicity which is having multiple ways to accomplish a particular operation. It's considered a complicating characteristic of a programming language because it reduces the overall simplicity.
8. It can lead to reduced readability if the users are allowed to create their own overloading and don't do it sensibly or in a way others can understand. For example, if a programmer made + to be used between single-dimensioned array operands to mean the sum of all elements of both arrays it would be confusing for both the program readers and the author of the program. It reduces the overall simplicity.
9. An example would be the rules and exceptions in C with structs and arrays. C has 2 structured data types records and arrays, records can be returned from functions but arrays can't. A member of a struct can be any data type except void or a struct of the same type. An array element can be any data type except void or a function. Parameters are passed by value

unless they are arrays then they need to be passed by reference. All the rules and exceptions show a lack of orthogonality.
10. ALGOL 68. Every language construct in ALGOL 68 has a type and there are no restrictions on those types. The combinational freedom allows extremely complex constructs.
11. The selection statement plus GOTO is used to build more complicated control statements like a FOR loop.
12. A program is reliable if it performs to its specifications under all conditions. Features such as type checking, exception handling, aliasing, readability, and writability all have a significant effect on the reliability of programs.
13. It could lead to countless program errors for example the original C language didn't do this so an int-type variable could be used as an actual parameter in a call to a function that expected a float type and the compiler and run-time system both failed to detect the inconsistency. Any use of the parameter in the function would produce nonsense and the problems were often difficult to diagnose.
14. Aliasing is having two or more distinct names in a program that can be used to access the same memory cell. An example would be two pointers set to point to the same variable. Aliasing is often seen as a dangerous feature in a programming language.
15. Exception handling is the ability of a program to intercept run-time errors, take corrective measures, and then continue. An example would be the try-catch feature in Python.
16. Because programs that are difficult to read are both difficult to write and modify.

20. The deficiencies discovered were incompleteness of type checking and inadequacy of control statements.
21. Data abstraction, inheritance, and dynamic method binding
22. Smalltalk
23. Reliability and cost execution for example in Java all references to array elements must be checked to ensure that the index or indices are in their legal ranges. This is good for reliability but adds a great deal to the cost of execution of Java programs that contain large numbers of references to array elements. C doesn't require this so it executes faster but is less reliable.
24. Compilation, pure interpretation, and hybrid implementation
25. A compiler will produce faster program execution because translating a high-level language to machine code is substantially more complex.
29. It allows easy implementation of many source-level debugging operations, because all run-time error messages can refer to source-level units.