Given the following grammar and the right sentential form, show the phrases and simple phrases, as well as the handle.

Grammar:

S → aAb | bBA

A → ab | aAB

B → aB | b

bBab ab

ab
ab

A recursive descent parser for a language can not be based directly on a grammar for the language which does not have any recursive rules. False

What ***is not*** a language category? Multiprocessing

Lisp began as a pure functional language but gradually acquired more and more imperative features. Why?

Lisp's initial focus as a pure functional language stemmed from its emphasis on symbolic processing and list manipulation. However, as the language evolved, developers recognized the need for greater efficiency and closer interaction with hardware. The incorporation of imperative features allowed Lisp to address practical concerns, accommodate low-level system programming tasks, and broaden its applicability to a wider range of programming paradigms.

What was one of the primary contributions of SIMULA 67 Classes, objects, and inheritance

Attribute grammars can specify languages that can not be specified using a context free grammar. TRUE

What were the data needs that led to Lisp design?
Process data in lists

A narrowing conversion is one in which an object is converted to a type that can include at least approximations to all of the values of the original type. e.g., int to float. False

For a post condition a > 1 and the statement a = -b + 1 what is the weakest precondition b<0

A non-deterministic finite automaton for a regular language is generally easier to write than a deterministic one, but harder to apply to a string to see if it matches. TRUE

What is the difference between object and descriptor

Descriptor is the collection of the attributes of a variable, while an object is an instance of a user-defined type

How involved should the mapping be for majority of the primitive data types

Majority of primitive data types require simple mapping

Every BNF grammar G that has left recursion can be converted into a grammar G' that recognizes exactly the same language and has no recursive rules in it.

Falsee

The procedural programming paradigm treats procedures as first class objects.

False

How is descriptive power of BNF changed with Extended BNF

Descriptive power of BNF is not changed in Extended BNF, EBNF only increase its readability and writeability

Consider the following grammar:

<S> → <A> a <B> b
<A> → <A> b | b
<B> → a <B> | a

Which of the following sentences are in the language generated by this grammar? State your answer as **yes** if you think the sentence can be generated and state **no** is you think the sentence cannot be generated

1. baab y

2. bbbab n

3. bbaaaaa n

4. bbaab   y

What is a purpose of language recognizers

Language recognizers need to determine whether given programs are in the language

How could the semantic issue of the order of evaluation of the two different operators (e.g. + and *) be solved

This issue could be solved by assigning different precedence levels to operators

A BNF grammar can not contain both left-recursive and right-recursive rules. False

In the example attribute grammar above, what is the type of the expression when the operand types are not the same Real

 When you might want to the compiler to ignore type differences in an expression

iii) type 1 range of integers type 2 integer