**Generated MCQs**

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**Q1: What is a grammar defined as in the context of formal languages?**

A) A method for checking the meaning of words

**B) A set of formal rules to check sentence correctness**

C) A list of all possible sentences

D) A tool for translating languages

**Correct Answer: B**

**Q2: In the definition of a grammar G = (V, T, P, S), what does 'T' stand for?**

A) Type of grammar

B) Temporary symbols

**C) Finite set of Terminals**

D) Total productions

**Correct Answer: C**

**Q3: What does 'V' represent in the grammar notation G = (V, T, P, S)?**

A) Vocabulary size

**B) Finite set of Variables (Non-terminals)**

C) Validation rules

D) Version of the grammar

**Correct Answer: B**

**Q4: Which component of the grammar G = (V, T, P, S) is the 'Start variable'?**

A) V

B) T

C) P

**D) S**

**Correct Answer: D**

**Q5: How are Variables (Non-terminals) typically represented in grammar rules?**

A) Small letters

B) Numbers

**C) Capital letters**

D) Special symbols like \* or +

**Correct Answer: C**

**Q6: What is the term for the sequence of production rules applied to generate a sentence from the start symbol?**

A) Parsing

**B) Derivation**

C) Compilation

D) Analysis

**Correct Answer: B**

**Q7: In a derivation tree (parse tree), what kind of symbol usually labels the root node?**

A) A terminal symbol

**B) The start variable**

C) An end marker

D) An operator

**Correct Answer: B**

**Q8: What type of symbols are typically found at the leaf nodes of a complete derivation tree?**

A) Non-terminal symbols

B) The start symbol only

**C) Terminal symbols**

D) Production rules

**Correct Answer: C**

**Q9: What characterizes the left-hand side of a production rule in a Context-Free Grammar (CFG)?**

A) A single terminal symbol

B) A string of terminals

**C) A single non-terminal symbol**

D) An empty string

**Correct Answer: C**

**Q10: What does it mean if a grammar is ambiguous?**

A) It generates sentences that have no meaning

B) It has rules that are difficult to understand

**C) The same sentence can be generated by more than one derivation tree**

D) It uses both capital and small letters

**Correct Answer: C**

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