13 Lecture - CS402

Important Mcqs

1. **Which of the following is a key feature of a Nondeterministic Finite Automaton (NFA)?**
   A. It has a single transition function
   B. It can have multiple transitions from a state on the same input symbol
   C. It cannot have transitions on empty input
   D. It has a fixed number of states
   Answer: B

   In a NFA, when given an input string, it can enter:
   A. Only one state at a time
   B. Multiple states simultaneously
   C. Only the initial state
   D. None of the above
   Answer: B

   Which of the following is true about the transition function of a NFA?
   A. It maps each state to a unique input symbol
   B. It maps each state and input symbol to a unique state
   C. It maps each input symbol to a unique state
   D. It maps each input symbol to a set of states
   Answer: D

   In a NFA, if there exists a path through the states that leads to an accepting state, then the input string is:
   A. Rejected
   B. Accepted
   C. Ignored
   D. None of the above
   Answer: B

   The power of NFAs lies in the fact that they can recognize:
   A. Only regular languages
   B. Context-free languages
   C. Context-sensitive languages
   D. Turing machines
   Answer: A

   Which of the following is a limitation of a NFA?
   A. It cannot recognize regular languages
   B. It has a limited number of states
   C. It can only have one accepting state
   D. It requires more memory than a DFA
   Answer: D

   Which of the following is true about the number of accepting states in a NFA?
   A. It can have only one accepting state

B. It can have multiple accepting states
C. It must have an even number of accepting states
D. It cannot have any accepting states
Answer: B

The set of all strings that a NFA accepts is called its:
A. Language
B. Alphabet
C. State set
D. Transition function
Answer: A

Which of the following is true about the complement of a language recognized by a NFA?
A. It is always regular
B. It is not necessarily regular
C. It is always context-free
D. It is not a valid concept
Answer: B

Which of the following is true about the equivalence of NFAs and DFAs?
A. Every NFA can be converted to an equivalent DFA
B. Every DFA can be converted to an equivalent NFA
C. NFAs and DFAs are not equivalent
D. Both NFAs and DFAs are Turing-complete
Answer: A