

TOC Unit I MCQ

1.Number of states of FSM required to simulate behaviour of a computer with a memory capable of storing “m” words, each of length ‘n’

- a. $m \times 2^n$
- b. 2^{mn}
- c. $2^{(m+n)}$
- d.All of the mentioned

Answer: (b). 2^{mn}

2.An FSM with

- a.M can be transformed to Numeral relabeling its states
- b.M can be transformed to N, merely relabeling its edges
- c.Both of the mentioned
- d.None of the mentioned

Answer: (c).Both of the mentioned

3.The transitional function of a DFA is

- a. $Q \times \Sigma \rightarrow Q$
- b. $Q \times \Sigma \rightarrow 2Q$
- c. $Q \times \Sigma \rightarrow 2n$
- d. $Q \times \Sigma \rightarrow Q^n$

Answer: (a). $Q \times \Sigma \rightarrow Q$

4.The transitional function of a NFA is

- a. $Q \times \Sigma \rightarrow Q$
- b. $Q \times \Sigma \rightarrow 2Q$
- c. $Q \times \Sigma \rightarrow 2n$
- d. $Q \times \Sigma \rightarrow Q^n$

Answer: (b). $Q \times \Sigma \rightarrow 2Q$

5.Maximum number of states of a DFA converted from a NFA with n states is

- a.n
- b. n^2
- c. $2n$
- d.None of these

Answer: (c). $2n$

6.Basic limitations of finite state machine is

- a.It cannot remember arbitrarily large amount of information
- b.It cannot remember state transitions

- c.It cannot remember grammar for a language
- d.It cannot remember language generated from a grammar

Answer: (b). It cannot remember state transitions

7.A finite automata recognizes

- a.Any Language
- b.Context Sensitive Language
- c.Context Free Language
- d.Regular Language

Answer: (d). Regular Language

8.Which is true for Moore Machine?

- a.Output depends on present state
- b.Output depends on present input
- c.Output depends on present state and present input
- d.Output depends on present state and past input

Answer: (a). Output depends on present state

9.Which is true for Mealy Machine?

- a.Output depends on present state
- b.Output depends on present input
- c.Output depends on present state and present input
- d.Output depends on present state and past input

Answer: (c).Output depends on present state and present input

10.Which is true for inaccessible state?

- a.It cannot be reached anytime
- b.There is no necessity of the state
- c.If control enters no way to come out from the state
- d.If control enters FA deads

Answer: (a).It cannot be reached anytime

11.In Moore Machine O/P is associated with

- a.Present state
- b.Next state
- c.Input
- d.None of the above

Answer: (a).Present state

12.The regular languages are not closed under

- a.Concatenation

- b.Union
- c.Kleene star
- d.Complement

Answer: (d).Complement

13.NFAs are ____ DFAs.

- a.Larger than
- b.More expressive than
- c.Less expressive than
- d.Equally expressive as

Answer: (a).Larger than

14.Conversion of a DFA to an NFA

- a.Is impossible
- b.Requires the subset construction
- c.Is Chancy
- d.Is nondeterministic

Answer: (b).Requires the subset construction

15.The subset construction shows that every NFA accepts a

- a.String
- b.Function
- c.Regular language
- d.Context-free language

Answer: (c).Regular language

16.Can a DFA simulate NDFA

- a.No
- b.Yes
- c.Sometimes
- d.Depends on NDFA

Answer: (b).Yes

17.Find the wrong statement?

- a.The language accepted by finite automata are the languages denoted by regular expression
- b.Every DFA has a regular expression denoting its language
- c.For a regular expression r , there does not exist NFA with $L(r)$ any transit that accept
- d.None of these

Answer: (c).For a regular expression r , there does not exist NFA with $L(r)$ any transit that accept

18.The relation between NFA-accepted languages and DFA accepted languages is

- a.>

- b.<
- c.=
- d.<=

Answer: (c).=

19.The lexical analysis for a modern language such as Java needs the power of which one of the following machine models in a necessary and sufficient sense?

- a.Finite state automata
- b.Deterministic pushdown automata
- c.Non-deterministic pushdown automata
- d.Turing machine

Answer: (a).Finite state automata

20.The classes of languages P and NP are closed under certain operations, and not closed under others. Decide whether P and NP are closed under each of the following operations.

- 1. Union**
- 2. Intersection**
- 3. Intersection with a regular language**
- 4. Kleene closure (star)**
- 5. Homomorphism**
- 6. Inverse homomorphism**

- a.P is not closed under union
- b.NP is not closed under intersection
- c.None of the mentioned
- d.Both of the mentioned

Answer: (d).Both of the mentioned

21.The reorganizing capability of NDFA and DFA

- a.May be different
- b.Must be different
- c.Must be same
- d.None of the above

Answer: (c).Must be same