
Course - CS303, Class Quiz -2

Date- 28/08/2021, Date of Submission :- 28/08/2021 (11:25am)

Format of submission :- Clubbed all the ans in a pdf, the name of the file should be "Roll No_Quiz_no_" and send it cs303iitp@gmail.com,

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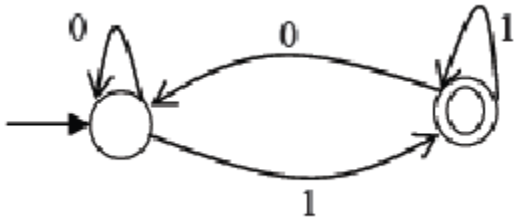
Q-1.

Which of the regular expressions given below represent the following DFA?



I 0*1(1+00*1)*

II 0*1*1+11*0*1

III (0+1)*1

(A) I and II only
(B) I and III only
(C) II and III only
(D) I, II, and III

Q-2.

(a+b)* is equivalent to

a) b*a*
b) (a*b*)*
c) a*b*
d) None of the above

Q-3.

If we select a string w such that w ϵ L and w= xyz. Which of the following portion cannot be an empty string

a) x
b) y
c) z
d) All of the above

Q-4.
How many _____ tuples are there in a finite state machine.
a) 4
b) 5
c) 6
d) unlimited

Q-5.
Regular expression for all strings starts with ab and ends with bba is.
a) aba*b*bba
b) ab(ab)*bba
c) ab(a+b)*bba
d) All of the mentioned

Q-6.
Which of the following is a regular language?
a) String whose length is a sequence of prime numbers
b) String with substring wwr in between
c) Palindrome string
d) String with even number of Zero's

Q-7.
DFA that accept all strings on {a,b} with a^n as a substring has how many states
a)n-1
b)n
c)n+1
d)n+2

Q-8.
Consider the production grammar
S->AB|AS,
A->a|aA,
B->b
Which of the following regular expressions corresponds to the production grammar?
a)(ab)*a
b)aa*b
c)ab+
d)aa*ba

Q-9.

The set (a+b)* does not correspond to which grammar?

1.S->aS|bS|a|b

2.S->aS|bS|€

3.S->a|b|SS|€

4.S->aS|bS|€|a|b

a) 1 only.
b) 1and 4
c) 1and 3
d) 2 and 3

Q-10.

The minimal finite automata accepting the set denoted by (a+b)*(aa+bb) has -

a) 3 states
b) 4 states
c) 2 states
d) 5 states

Q-11.

Which of these is/are FALSE regarding pumping lemma for regular languages?

a) Satisfying pumping lemma is a necessary condition for languages to be regular.
b) Satisfying pumping lemma is a sufficient condition for languages to be regular.
c) Not satisfying pumping lemma is a necessary condition for languages to be regular.
d) Not satisfying pumping lemma is a sufficient condition for languages to be non- regular.

Q-12.

Let ‘n’ be the length of the input string and ‘m’ be the number of nodes. Then the running time of DFA is ‘t’ times that of an NFA. Here, ‘t’ stands for -

a) 2^m
b) $1/m^2$
c) 1/m
d) Log m

Q-13.

The logic of pumping lemma is a good example of

a) Pigeon-hole principle
b) Divide-and-conquer technique
c) Recursion
d) Iteration

Q-14.

The basic limitation of finite automata is that

a) It sometimes fails to recognize regular grammar.

b) It sometimes recognizes grammar that is not regular.

c) It can’t remember an arbitrary large amount of information.

d) All of the mentioned

Q-15.

Complement of (a + b)* will be

a) phi

b) null

c) a

d) b