Started on	Tuesday, 31 August 2021, 9:00 AM
State	Finished
Completed on	Tuesday, 31 August 2021, 9:23 AM
Time taken	22 mins 47 secs
Grade	**24.00** out of 28.00 (**86**%)

Question **1**

Correct

Mark 2.00 out of 2.00

Choose the correct options from the following.

Select one:

- a. **DFA can have more than one accepting state.** ✔
- b. **ϵ can be a symbol of the alphabet of a language.**
- c. **DFA can have more than one start state.**
- d. **Final state of any string in a language L is not always an accepting state in language L.**

Your answer is correct.

The correct answer is: **DFA can have more than one accepting state.**

Question **2**

Incorrect

Mark 0.00 out of 2.00

L = { w ϵ { 0, 1}* | w is divisible by 8 }

What is the minimum number of states required by a DFA to represent L? Assume that epsilon is divisible by 8.

Select one:

- a. 7
- b. 8 ✖
- c. 6
- d. 4

Your answer is incorrect.

The correct answer is: 4

Question **3**

Correct

Mark 2.00 out of 2.00

Which of the following options are correct?

Select one or more:

- a. **For every regular language, there will be a unique regular expression.** ✖
- b. **For every regular expression, there will be corresponding DFA and NFA both.** ✔
- c. **For every regular expression, there will be a unique regular language .** ✔
- d. **For every regular expression, there will be corresponding NFA but not DFA.**

Your answer is correct.

The correct answers are: **For every regular expression, there will be corresponding DFA and NFA both.**, **For every regular expression, there will be a unique regular language .**

Question **4**

Correct

Mark 2.00 out of 2.00

Languages A ={ ab, a, bb, b }

B ={ 0, 01, 10, 11 }

The the number of strings in (A ∪ B) , A · B , A* are respectively the following:

Select one:

- a. **8 , 16 , infinite** ✔
- b. **8 , 16 , 17**
- c. **4 , 8 , 1**
- d. **8 , 8 , infinite**

Your answer is correct.

The correct answer is: **8 , 16 , infinite**

Question **5**

Incorrect

Mark 0.00 out of 2.00

Let N be an NFA and D be a DFA equivalent to N. Then which of the following statement is true?

Select one:

- a. **Number of states of D is always greater than or equal to the number of states of N.** ✖
- b. **Number of states of D is always greater than the number of states of N.**
- c. **Number of states of D may be greater than or equal to or less than number of the states of N.**
- d. **Number of states of D and number of states of N are always the same.**

Your answer is incorrect.

The correct answer is: **Number of states of D may be greater than or equal to or less than number of the states of N.**

Question **6**

Correct

Mark 2.00 out of 2.00

Which of the following regular expressions correspond to the following language?

L = {w ϵ { 0, 1}* | |w| is divisible by 4 }

Assume epsilon is divisible by 4.

Select one or more:

- a. **((00+01+10+11)(00+01+10+11))*** ✔
- b. **((0+1)(0+1)(0+1)(0+1))*** ✔
- c. **((00+01)(11+10))***
- d. **((0+1)(0+1)(0+1)(0+1)*)***

Your answer is correct.

The correct answers are: **((0+1)(0+1)(0+1)(0+1))***, **((00+01+10+11)(00+01+10+11))***

Question **7**

Correct

Mark 2.00 out of 2.00

For the regular expressions ϕ, ϵ and c (where c is a symbol of the alphabet), the number of non-accepting states and number of accepting states of a corresponding minimum-state NFA are respectively as follows:

Select one:

- a. **ϕ = 1, 0 ϵ = 0, 1 c = 1, 1** ✔
- b. **ϕ = 0, 1 ϵ = 0, 1 c = 1, 1**
- c. **ϕ = 1, 0 ϵ = 1, 1 c = 1, 1**
- d. **ϕ = 0, 0 ϵ = 1, 0 c = 1, 1**

Your answer is correct.

The correct answer is: **ϕ = 1, 0 ϵ = 0, 1 c = 1, 1**

Question **8**

Correct

Mark 2.00 out of 2.00

If L is regular language having corresponding DFA D , such that

D = (Q, Σ, δ, q0 , F) , DFA for complement of L will be

Select one:

- a. **D' = (Q, Σ, δ, q0 , Q-F)** ✔
- b. **D' = (Q, Σ, δ, q0 , Q)**
- c. **D' = (Q, Σ, δ, q0 , F)**
- d. **D' = (Q, Σ, δ, q0 , F-Q)**

Your answer is correct.

The correct answer is: **D' = (Q, Σ, δ, q0 , Q-F)**

Question **9**

Complete

Not graded

Which is/are false about GNFA.

Select one or more:

- a. **GNFA has a unique accepting state.**
- b. **There are no outgoing transitions from accepting state but may have incoming transition to start state.**
- c. **There are no incoming transitions to the start state but may have an outgoing transition from the accepting state.**
- d. **There are no incoming transitions to the start state and no outgoing transition from the accepting state.**

Your answer is correct.

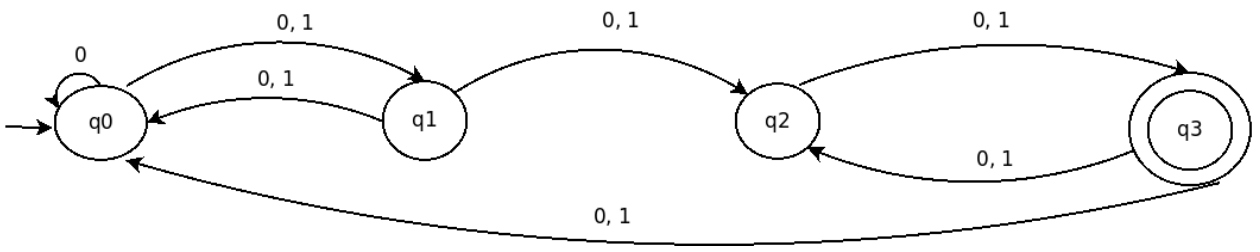
The correct answers are: **There are no incoming transitions to the start state but may have an outgoing transition from the accepting state.**, **There are no outgoing transitions from accepting state but may have incoming transition to start state.**

Question **10**

Correct

Mark 2.00 out of 2.00

Find the set of final states of the string w = 10101100 in the following NFA.



Select one:

- a. **{ q0, q1, q3}**
- b. **{q0, q2}**
- c. **{ q0, q1, q2}** ✔
- d. **{q1,q3}**

Your answer is correct.

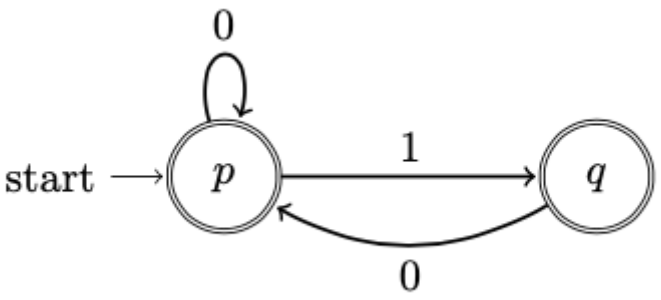
The correct answer is: **{ q0, q1, q2}**

Question **11**

Correct

Mark 4.00 out of 4.00

Describe the language accepted by the following finite automata in the simplest possible form.



{w in {0,1}* | w does not contain 11 ✔ as a substring}

The correct answer is: 11

Question **12**

Correct

Mark 6.00 out of 6.00

Design a DFA with 3 states (p,q, and r) that accepts the following language

L = {w in {0,1}* | w does not end with 00}

Start state of the DFA is p and accept states are {p,q}.

Transition Table of the DFA

	0	1
p	q ✔	p ✔
q	r ✔	p ✔
r	r ✔	p ✔

p q r

Your answer is correct.

The correct answer is:

Design a DFA with 3 states (p,q, and r) that accepts the following language

L = {w in {0,1}* | w does not end with 00}

Start state of the DFA is p and accept states are {p,q}.

Transition Table of the DFA

	0	1
p	[q]	[p]
q	[r]	[p]
r	[r]	[p]

◄ Lecture Notes 9 Jump to... Midsem Exam ►