Started on	Saturday, 5 November 2022, 9:05 PM
State	Finished
Completed on	Saturday, 5 November 2022, 9:14 PM
Time taken	9 mins 5 secs
Marks	12.00/15.00
Grade	**8.00** out of 10.00 (**80**%)

Question **1**

Correct

Mark 1.00 out of 1.00

Which of the following problems are decidable?

1. If L is a regular language, then L^R is also regular.
2. There exists a program which takes input as a context-free language and outputs whether it is inherently ambiguous.
3. If L is a context-free language, then L^* is also context-free.

- a. 1 and 3 ✔
- b. All of the above
- c. 2 and 3
- d. 1

Your answer is correct.

The correct answer is:
1 and 3

Question **2**

Incorrect

Mark 0.00 out of 1.00

Two-way finite automaton are machines that can read an input string in both directions; other than this, it behaves like a normal FA that we have studied. The transition function $\delta : Q \times \Sigma \rightarrow Q \times \{L, R\}$.

The difference between Turing Machine and two-way finite automaton is in

- a. Read-write head
- b. Input tape
- c. Finite control (state)
- d. All of these ✖

Your answer is incorrect.

The correct answer is:
Read-write head

Question **3**

Correct

Mark 1.00 out of 1.00

The statement "A Turing Machine can't solve a halting problem" is

- a. Still an open problem
- b. True ✔
- c. False

Your answer is correct.

The correct answer is:
True

Question **4**

Correct

Mark 1.00 out of 1.00

Eulerian cycle problem is in $\mathcal{NP}$.

Select one:

- True ✔
- False

The correct answer is 'True'.

Question **5**

Correct

Mark 1.00 out of 1.00

The class of $\mathcal{NP}$ languages is closed under complementation.

Select one:

- True
- False ✔

The correct answer is 'False'.

Question **6**

Correct

Mark 1.00 out of 1.00

The Turing Machine for the Post's Correspondence Problem halts in a non-accepting state for the instance which does not serve as a solution?

Select one:

- True
- False ✔

The correct answer is 'False'.

Question **7**

Correct

Mark 1.00 out of 1.00

The statement, "A Turing Machine can't solve a halting problem" is

Select one:

- True ✔
- False

The correct answer is 'True'.

Question **8**

Correct

Mark 1.00 out of 1.00

Problems that cannot be solved by any algorithm are called

Answer: Undecidable ✔

The correct answer is: undecidable

Question **9**

Correct

Mark 1.00 out of 1.00

If there exists a polynomial time reduction from every language $L' \in \mathcal{NP}$ to L then L is said to be

- a. $\mathcal{NP}$-hard ✔
- b. $\mathcal{NP}$-complete

Your answer is correct.

The correct answer is:
\mathcal{NP}-hard

Question **10**

Correct

Mark 1.00 out of 1.00

Since SAT is $\mathcal{NP}$-complete and CSAT can be reduced to SAT, CSAT is $\mathcal{NP}$-complete.

Select one:

- True
- False ✔

The correct answer is 'False'.

Question **11**

Incorrect

Mark 0.00 out of 2.00

Suppose you have been given two languages A and B such that A is recursive and B is recursively enumerable but not recursive .
State if the following statement is true or false.
"There is a reduction from B to A."

Select one:

- True ✖
- False

The correct answer is 'False'.

Question **12**

Correct

Mark 1.00 out of 1.00

It is not known whether $\mathcal{P}=\mathcal{NP}$.

Select one:

- True ✔
- False

The correct answer is 'True'.

Question **13**

Correct

Mark 1.00 out of 1.00

There exists a polynomial time algorithm to solve 2-SAT.

Select one:

- True ✔
- False

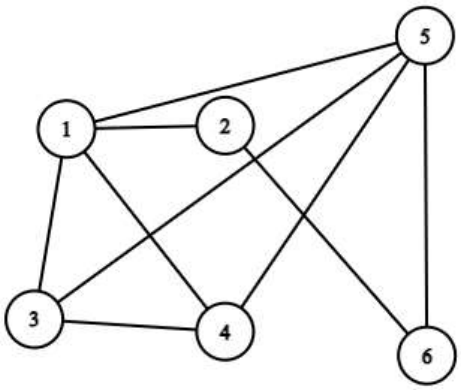
The correct answer is 'True'.

Question **14**

Correct

Mark 1.00 out of 1.00

Find a 4-clique in the graph below. (Write endpoints of this clique in an increasing order). Does it have a 5-clique?



Answer: 1345, No ✔

The correct answer is: 1345, No

◄ Quiz 5

Jump to...

LEX ►