Test 1 Term 3: Exploring Computer Technology TEJ0

The Dragon Academy, Grade 9 2019

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* Required

1. Name *

2. A Turing Machine is *

Mark only one oval.

a toy model, a game of sorts, that can simulate ANY algorithm imaginable, no matter how complicated.

a machine invited by Alan Turing to break the encryption used by the enemies during WWII

) a machine used to build computers that was invented by Alan Turing

- a game that can be played on a computer
- Other:

3. A Turing Machine consists of *

Mark only one oval.

An infinite tape with 0's and 1's, movable reading head, a set of states and a set of rules

lots of electrical components, cranks, light bulbs and cables that consumes a lot of electricity

) the same as option 2 but no bulbs

) a GUI (graphical user interface), and powerful computer and a joystick

· · ·	Other a
	IIIDOR
	Oulei

4. True or False: If a Turing Machine cannot calculate the solution to a problem, NO machine in the world, not even humans, can calculate it. *

5. If a Turing Machine falls into an infinite loop, that is, if it keeps calculating for ever, this means that *

Mark only one oval.

There is no solution to the problem or the rules are buggy (e.g. they are wrong or incomplete)

Nothing is forever. That's just a way of talking. Eventually, all Turing Machine halt.

the machine will get very hot and eventually burn

) the Turing Machine behaves like a busy beaver and this means it just needs a rest

Other:

 M), (A,0) -> (E,1,<-), (A,1) -> (I,0, ->), E -> HALT *
(Yes
(No
7. W re	rite the rules of a TM that satisfies the following requirements: 1) as soon as it ads a 0, it writes 2 1's in row and it stops 2) as soon as it sees 111 it stops *
8. W 3	rite the rules of a TM satisfying the requirements: 1) as soon as it sees a 0 it write 1's in a row and stops 2) if initially it sees a 1, it writes a 0 and moves to the left *
9. W or	rite the rules of a Turing Machine with only one requirement, namely, that it writes ι tape always the opposite of what it reads. *
0. W	rite a Turing Machine that turns all input to 0 and stops after 10 steps. *

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