The Difference between a Brain and a Computer
(Issac Asimov)

The difference between a brain and a computer can be expressed in a single word, that is, 'complexity'.

The human brain is the most complicated thing known to us. The human brain weighs only three pounds. In these three pounds, there are ten billion nerve cells and a hundred billion smaller cells. These billions of cells are interconnected in a very complicated network that cannot be understood so easily.

Can a computer think? That depends on what you mean by "think." If solving a mathematical problem is "thinking," then a computer can "think", and does faster than man does. Of course, most of the mathematical problems can be solved quite mechanically by repeating certain straightforward processes over and over again. Even the simple computers of today can do so.

It is frequently said that computers solve problems only because they are programmed to do so. They can only do what men have fed in them. One must remember that human beings can also do only what they are programmed to do.

Our programme is very complex. We might like to define "thinking" as the creativity that goes into writing a play, composing a symphony, conceiving a scientific theory, or making a judgment. In that sense computers certainly can't think.

The brain is made up of cells in a certain arrangement. The cells are made up of atoms and molecules in certain arrangements. To duplicate the material complexity of the brain is, therefore, to duplicate everything about it.

But how long will it take to build a computer complex enough to duplicate the human brain. Perhaps, not as long as some may think. Long before we approach a computer, we will perhaps build a computer which is, at least, complex enough to design another computer more complex than itself. This more complex computer can design one still more complex than itself. This further complex computer can be developed into one still more complex than the previous one, and so forth.

In other words, once we pass a certain critical point, the computers take over and there will be "complexity explosion." In a very short time thereafter, computers may exist that will not only duplicate the human brain, but also will surpass it. Will a time ever come when man will have to handover the job to someone who can do it better than he can do.

Yes! Perhaps. But we will have to wait till such a wonder takes place.

Notes

Most scientists and knowledgeable observers agree that computers will change our lives completely, more than the automobile, television, or any technological innovation has done so far. How far can computers go? Science writer Isaac Asimov compares the computer with the human brain. His conclusions may frighten you. They're sure to make you stop and think. But computers definitely are going to create havoc, somewhere, sooner or later! Let's wait and see!

Words	Meanings
complicated	difficult to understand
device	a thing made for a particular purpose
compose	write with great care
complexity	complication
duplicate	make an exact copy
conceive	form an idea in the mind
symphony	long complex musical composition

EXERCISES

1. Choose the most appropriate (the best) answer.

i. The human brain weighs

a) two pounds b) three pounds
c) four pounds d) five pounds

ii. How many nerve cells are there in a human brain?

a) ten billion b) eleven billion
c) twelve billion d) thirteen billion

iii. The cells of human brain are

a) separate b) disconnected
c) interconnected d) different

iv. The computer can solve a mathematical problem

a) slower than a man b) in no time
c) in a long period d) faster than a man

v. Computers are programmed to

a) solve mathematical problems. b) think to create.
c) plan. d) forecast.

2. Put a tick (✓) on the correct.

i. Computers can / cannot solve mathematical problems.
ii. The brain is / is not made up of cells.
iii. Complexity is / is not the difference between a brain and a computer.
iv. Computer is / is not the equivalent of human brain.
v. The human brain is / is not the most complicated thing.

3. Answer the following questions.

i. In what single word can the difference between a brain and a computer be expressed?
ii. How much does the human brain weigh?
iii. How long will it take to build a computer complex enough to duplicate the human brain?
iv. Can computers think? Explain your answer.
v. Do you think computers have the capacity to take over the world? Why or why not?

4. Read the lesson carefully. Fill in the blanks with suitable words given below.:

cells, three, thinking, think, ten, complexity, fed, programmed

i. The difference between a brain and a computer can be expressed in one word_____.
ii. The human brain weighs_____ pounds.
iii. There are_____ billion nerve cells in the human brain.
iv. Can a computer_____?
v. Computers solve problems only because they are_____.
vi. Computers can do only what men have _____in them.

vii. The creativity that goes into writing a great play or composing a symphony is defined as _____.

viii. The brain is made up of _____.

5. **Connect part of the sentence in column I with relevant part of the sentence in column II.**

Column I	Column II
Complexity is	a mathematical problem.
A computer can solve	the difference between a brain and a computer.
Computers solve problems	that goes into writing a play or composing a symphony.
Thinking is creativity	because they are programmed to do so.
The brain is made up of cells	in a certain arrangement.

6. **Use the following words in sentences of your own.**

size, complicated, device, programme, compose

7. **Change the following sentences from indirect to direct speech.**

I. Asma said that she would bring the cake to the party.

ii. Hamid said that he would go to library in the evening.

iii. Maryam said that she wanted to eat a banana.

iv. Umar said that he was going to the market to buy a shirt.

v. Beenish said that she was sorry for being late.