Questions And Answers

Questions about computing that often spring to mind but are rarely answered in the manuals and magazines

Could computers have emotions?
Computers do not and could not have emotions at the moment. The really interesting question is: Why not? The computers of today are not intelligent — they cannot think for themselves. How long it will take to produce thinking computers is not known, but probably it will be within the lifetimes of people living today. Some researchers hold the view that creative thought processes are inseparable from emotions. Computers that can think will, according to this view, be computers with emotions.

What is the difference between a computer and a robot?
Robots are mechanical extensions of computers; the arms and eyes do what the 'brain' of the computer tells them. The robots helping to build today's cars and stereo systems all incorporate microcomputers, but they are still fairly 'dumb'. Confronted with an unexpected situation, they simply don't know what to do. The robots of tomorrow will incorporate more sophisticated computers and robots with limited intelligence are just around the corner.

Why is some software so expensive? Many games programs cost only a few pounds, but business programs often cost hundreds.
Writing large programs, especially thoroughly tested business software, takes teams of highly paid programmers months or years of work. To recoup the huge financial investment and to make a profit, software companies have to sell their products at prices guaranteed to cover costs. A computer game may sell hundreds or even thousands of copies, so a retail price of a few pounds may ensure a profit. If the potential market is strictly limited, the retail price will have to be far higher. Many programs are highly specialised; a printer's estimating package (allowing estimates for printing jobs to be made quickly and accurately) has a potential market limited to the total number of printers in the country. An investment of hundreds of thousands of pounds will have to be recouped whether sales are measured in tens or in thousands.

They say the silicon chip will throw millions out of work. How could a microcomputer make me redundant?
The long-term social effects of the microcomputer are hard to predict, but what seems very clear is that we are witnessing the start of the second industrial revolution. Computers, particularly miniaturised and low-cost micro-computers, when linked to mechanical robots, can easily be adapted to replace expensive manual labour. Even skilled jobs are not safe. Bookkeeping and accounting can now be handled by computer programs, and newspaper typesetters' jobs are threatened now that journalists' word processors can be directly linked to electronic typesetting equipment. Computers can do complex arithmetical processes so quickly, and robots can perform complex mechanical operations so well, that fewer workers are needed to get a job done.

Can computers be used to rob a bank or start a Third World War?
Since computers can communicate with each other using ordinary telephone lines, it would be possible in theory to tap in to a bank's central computer and issue orders to transfer funds to your account. In practice things are not so simple. The banks use advanced data protection methods to ensure there is no unauthorised access to confidential information. The techniques used involve secret methods of encoding all the information. These codes are almost impossible to break and in many cases are not even available to the bank employees. One of the codes used for highly confidential information is so difficult to crack it has been estimated that the world's most powerful computer would take billions of years to do it.

Breaking into a military

computer system would be even more difficult. Military computers generally do not use public telephone lines for this very reason. The microwave and satellite links used are not readily accessible to ordinary people — even dedicated computer buffs. Even if one were able to intercept a microwave link carrying computer information, the problem of cracking the codes would still remain.