Competitive Exams: Digital and Analog Computers

There are two different types of computers: Digital & Analogue

Digital Computer

The automatic, digital computer was invented in 1833 by Charles Babbage (1791 – 1871) , a mathematician at Cambridge University, England. For various financial and technological reasons, Babbage's machine, which he called the Analytical Engine, was never built.

The first specifications for the modem digital, computer were drawn up in 1946 by John Louis von Neumann (1903 – 1957) who, at the lime, was Director of the Electronic Computer Project and Professor of Mathematics at the Institute for Advanced Study, Princeton, USA The basic model for a digital computer is still known as the von Neumann machine. The first working computers were built in the late 1940s at Manchester University, England, at the Institute for Advanced Study, and at Cambridge University, England-first commercially delivered machines were installed at Manchester University and at the US Beureau of Census, early in 1951.

Since the 1950s, there has been an explosive growth in the use of computers, and there arc now over one million of them throughout the world. Computers are used in most organisations in government, education, commerce and industry, for such data-processing tasks as the preparation of payrolls, invoices and bank statements. They are also indispensable tools in, for example, the control of industrial plant and production machinery, company management, weather forecasting, high-technology ventures such as space exploration, and even in the design and manufacture of computers themselves. The recent advent of microminiaturisation of computer circuits, and the development of microprocessors, promises a host of new computer applications, and in further stimulating the growth of the computer industry.

A digital computer is so called becaue it uses a series of digits to represent all types of information.

The binan; digits, 0 and 1, also called bits, are used almost exclusively. For example, the following series of 16 bits, called a 16-bit pattern, 0010100011001100

can represent the number ten thousand four hundred and forty four, or the pair of characters or a computer instruction which specifies the addition of two numbers.

Analog Computers

In contrast to digital computers, analogue computers use the values of continuously varying physical quantities to represent information. For example, the angles of displacement of minute and hour hands round a clock face constitute an analogue method of representing time, whereas digital clocks use decimal digits.

Although all computers have the above overall purpose, they differ in structure from one to another. Nevertheless, they mostly contain the same basic components interconnected in similar ways. The structure for a Simple Digital Computer, henceforth referred to as SDC.

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