

Q. What is a computer?

A computer is a high speed electronic data processing machine. An automatic computer is a machine that accepts data at its input, processes it by doing some kind of manipulations, and presenting the desired results under the direction of detailed step by step instructions.

The computer stores, retrieves, receive, analyze and synthesize the data to produce information. It consists of several sections of equipment; each performing a definite function. The computer can do substitution, alteration insertion, detection, rearrangement, movement and testing logical and arithmetic operations.

Comparison between computer and human Brain

COMPUTER

1. Weigh from a few grams to many tones.
2. Energy source is electricity. Microcomputer needs less power than consumed by a television set.
3. Less sensitive to heat and cold.
At best, about a thousand million basic computing elements, but increasing all the time.
4. The various parts can be in different places and linked by wires, satellite, laser beams etc.
5. Access speed to memory store limited by present technology. Almost unlimited memory can be created for human purposes. Memory can be modified or relaxed at will.
6. General intelligence about that of a very stupid worm. Intelligence created by logic. However, fifth generation computers may possess artificial intelligence.
7. Replacement, Repair and attraction easily possible.
8. The local memory of a computer is of two types – ROM and RAM.
10. Signal speed is tremendously high at 22,000,000 m/s.
11. Pulse duration= $1\mu\text{s}$.
12. Primary storage capacity is 1 million bits as present but increasing everyday. The super computer of fifth generation will have even more capacity than the brain.
13. Information dealing capacity of the KIPs series of computers shall be far superior to the human brain.

HUMAN BRAIN

1. It is made up of a hundred billion nerve cells (Neurons).
2. Thousand of fibers extent out of the neuron and these fibers, known as dendrites link the neurons with each other.
3. Length of these dendrites in single mind- 1 lakh kilometer (range).
4. The dendrites do not actually connect with each other but there is a small gap between them known as Synapse. It is through these gaps that nerves cells acts and transfers the signals to other human systems.

Through this network of nerves cells electrical & chemical impulses are generated day and night to constitute the process of thinking and psychology.

CHARACTERISTICS OF HUMAN BRAIN

1. Weigh about 1.5 kg.
2. Energy source is blood glucose.
3. Needs a steady temperature.
4. No. of basic computing elements is estimated (10¹¹) about a hundred billion. These nerves cells are known as **neurons**.
5. The various parts of the brain must stay in one place.
6. Rapid memory recall, apparently unlimited because of the way brain store ideas. It has limited memory. Memory affected by physical fitness. The Cerberus system can not be relieved of its memory storage at will.
7. Average intelligence rated at an IQ level of about 100.maximum is 160. In built intelligence wisdom and negotiation power available.
8. Damages are not repairable at present. But the brain has got self repairing capability.
9. The brain memory is divided into two portions- LTM and STM. i.e. long term and short term memory. Memory stays in mind or goes off depending upon the psychology. Memory cannot be washed off at the will of human being.
10. Signal transmission speed is only 60 meter per second or 0.04 million instructions per second.
11. Pulse duration – 0.1 second.
12. Primary storage capacity is ultra high, 10,000,000 million bits- but not dependable. Storing capacity is arbitrary and emotionally controlled.
13. The human brain is about ten thousand times more densely packed with information but it transmits its binary pulses ten billion times slower.