

Bridge Course for Computer Science Std. XI

Topic Covered:

1. Introduction to computer

- What is Computer
- What do you mean by Computer science
- Data and Information
- Input Process Output (IPO)Cycle

2. Problem solving techniques

- What is Problem solving techniques
- Steps for an effective problem solving techniques

Introduction to Computer

What is Computer?

- The term “computer” is derived from the word “compute” which means to calculate.
- The person who performs calculation is called calculator.
- “A Computer is an electronic device that takes raw data (unprocessed) as an input from the user and processes it under the control of a set of instructions (called program), produces a result (output), and saves it for future use.”

What does computer science mean?

- It is a study of hardware and software
- Computer science is a discipline that involves the understanding and design of computers and computational processes.
- Computer Science is concerned with communication between man and machine and with the application of these machines
- **It is a science of problem solving**

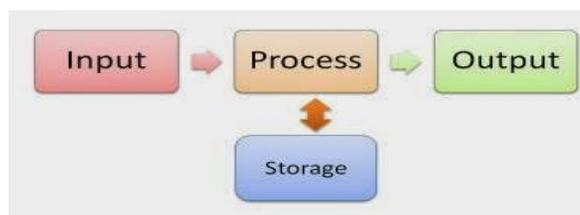
What is Data?

- Data is defined as an un-processed collection of raw facts, suitable for communication, interpretation or processing.
- It do not have any meaning.
- For example: Ravi, X, 459 are set of unprocessed data which has no meaning.

What is information?

- Information is a collection of facts from which conclusions may be drawn. It conveys some meaning.
- For example: Ravi scored 459 marks in X board exam. Once data are processed and put in form of sentences, it get some meaning. That is called information.

Input and output process:



- A computer follows an Input- Process- Output Cycle (IPO cycle).
- It needs certain input, processes that input and produces the desired output.
- The input unit takes the input, the central processing unit does the processing of data and the output unit produces the output.
- The memory unit holds the data and instructions during the processing .
- Raw data are given as input.
- Output yields information after processing.

Problem Solving

Problem solving is the process of finding solutions to difficult or complex issues. All problems have two features in common: goals and barriers.

Goals: Problems involve setting out to achieve some objective or desired state of affairs

Barriers: If there were no barriers in the way of achieving a goal, then there would be no problem. Problem solving involves overcoming the barriers or obstacles that prevent the immediate achievement of goals.

Here are the steps for an effective problem-solving process.

1. **Problem Identification:** This stage involves: detecting and recognizing that there is a problem; identifying the nature of the problem; defining the problem.
2. **Structuring the Problem:** This stage involves: a period of observation, careful inspection, fact-finding and developing a clear picture of the problem.
3. **Looking for Possible Solutions:** During this stage you will generate a range of possible courses of action, but with little attempt to evaluate them at this stage.
4. **Making a Decision:** This stage involves careful analysis of the different possible courses of action and then selecting the best solution for implementation.
5. **Implementation:** This stage involves accepting and carrying out the chosen course of action.
6. **Monitoring/Seeking Feedback:** The last stage is about reviewing the outcomes of problem solving over a period of time, including seeking feedback as to the success of the outcomes of the chosen solution.