Important Points:

1. The first definition we see by Mr. Elaine Rich (the author of the ‘Artificial Intelligence’).
   1. According to Elaine Rich - *computers are better than human beings in numerical computation, storing information for long time and repetition of work. Humans are better than computers in understanding the concept, prediction on the basis of pattern of system and logical reasoning.*
   2. In simple words, computers work better than human in performing sequential tasks with fast computation. On the other side, humans work better than computers in performing task parallel manner that is also known as parallel processing.
   3. Computers find difficulties in figuring out the context of input such as, *‘It’s been a long time,’.* Contextual information is important for computers to understand visual, speech inputs. For example, ‘*For a long time’* could be few hours or could be millions of years. It depends on contextual information.
2. The Second definition is given by Mr. Buchanin and Shortliffe.
   1. According to Mr. Buchanin and Shortliffe – *“AI is the branch of computer science that deal with symbolic rather than numeric processing and non-algorithmic method including the rules of thumb or heuristics instead of algorithms as technique for solving problem.”*
   2. Number processing deals with athematic operations with definite relation, whereas symbol deals with context of having number, character, special character to make decision. For example, in numeric processing: 164 is greater than 28 which is true but 5’7 height person is older than 5’4 height person we cannot surely say that it is true.
   3. Algorithm approach is similar to recipe which has well defined starting and ending points. In computers, solution to any problem is called algorithm.
   4. Difficult problem that cannot be solved with algorithmic approach. Those problems can be solved with non-algorithmic approach such as **Neural Network**. Besides Neural Network, there is one more approach called symbolic approach.
   5. Symbolic approach works on exploitation/manipulation of the knowledge of the domain. Some of this knowledge, generally called **heuristics** in Artificial Intelligence.
   6. In Artificial Intelligence, guesses are called **heuristics**.
3. Another definition by Mr. Elaine Rich
   1. According to Mr. Rich – *Artificial Intelligence is the study of techniques for solving exponentially hard problem in polynomial time by exploiting knowledge about the problem domain.*
   2. In this comment, Mr. Rich concerned about time and space complexity of the problem, exponential time complexity is considered as impractical amount of time from computation point of view whereas polynomial time takes reasonable amount of time which is good alternate to exponential time.
4. Definition by Mr. Barr and Feigenbaum
   1. According to Barr, AI is the part of computer concerned with designing intelligent system. Systems that exhibit the characteristics we associate with intelligence in human behavior.
5. Definition by Mr. Shalkoff
   1. According Mr. Shalkoff – *Artificial Intelligence is a field of study that seeks to explain and emulate intelligent behavior in terms of computational processes.*
   2. Artificial Intelligence is considered as partly engineering and partly scientific.
   3. Engineering is defined as the science and mathematics application which is useful to man in structure, meeting some requirements and according to some specifications.
   4. In Mr. Shalkoff’s words, through application of AI products are obtained that exhibit intelligent behavior, how to judge/evaluate whether a product obtained through an application of AI is actually intelligent.
   5. Mr. Alan Turning suggested a turing test is best testing approach for AI products.

**Uses/Application**

1. As discussed above, algorithmic approach has limitation that can be resolved by Artificial Intelligence approach using symbol processing and neural networks.
2. In general, we use artificial intelligence in pattern recognition, disease diagnosis, market value prediction, etc.
3. Most importantly for user interaction and instant response of unstructured queries.

**Important Questions**

1. What is the purpose of Turing test? Give a brief outline of the Turing test? What are the objections to the Turing test?

Answer: The purpose of turing test is explained with three room story. Consider, it is claimed that computer is intelligent which is placed in one of the three rooms, two person are sitting, one in each room. Let’s call 1st room person Suresh and 2nd room person Ramesh. Ramesh asked a question to computer and Suresh. Without knowing to whom a particular question is being directed. Computer would answer in such a way that its identity is not revealed to Ramesh.

**Objections to turing test:** There are number of objections for the turing test as a test of intelligence of a machine. Most popular objection is Chinese room test.

1. What is the purpose of Chinese Room test? Give a brief outline of Chinese? How did the outcomes of the Chinese Room Test contribute in the development of machine intelligence?

Answer: Chinese room test is a objection to the turing test. Chinese room test is the about two windows. In the room scholar on Shakespeare is sitting and scholar knows English but does not know Chinese. Scholar is sitting with a sort of encyclopedia on Shakespeare. The encyclopedia is printed in two languages. Chinese is written on one side and on other side its English translation.

Questions are asked to the person in Chinese language. The scholar looks into the encyclopedia and search for the match of sequence of characters in the encyclopedia and sends the sequence of Chinese characters through the other window.

**Reference**

1. For more information kindly IGNOU book : <https://drive.google.com/file/d/0ByLYiCci-v9qMmJjYmQwMzEtMmFkMC00OTc3LWIyNjYtYjMxMTgyZGRjZTc0/view?hl=en>
2. Rich E. & Knight K. (1991) Artificial Intelligence : <https://i4iam.files.wordpress.com/2013/08/artificial-intelligence-by-rich-and-knight.pdf>