Artificial Intelligence

-It is a branch of computer science that pursues creating the computers or machines as intelligent as human beings

AI vocabularies

1. Intelligence- intelligence relates to tasks involving higher mental processes eg. Creativity , solving problems, pattern recognition, classification, learning,,induction, deduction, building analogies, optimisation, language processing, knowledge and many more. Intelligence is the computational part of the ability to achieve goals

-Intelligence behavior is depicted by perceiving ones environment, acting in complex environments, learning and understanding from experience, reasoning to solve problems and discovering hidden knowledge, applying knowledge successfully in new situations, thinking abstractly, using analogies, communicating with others and more

b)

Science based goals of AI partains to developing concepts, mechanisms, and understanding biological intelligent behavior.

Engineering goals of AI relates to developing concepts, theory of practice of building intelligent machines

AI techniques – AI techniques depicts how we present, manipulate and reason with knowledge in order to solve problems. Knowledge is collection of facts. To manipulate this facts by a program, a suitable representation is required. A good representation facilitates good problem solving

Learning- program learn from what facts or behavior can represent. Learning denotes changes in system that are adaptive ie it enables the system to do the same tasks more efficiently next time.

Applications of AI

It refers to probl solving search and control strategies, speech recognition, natural language understanding, computer vision, expert systems etc

Branches of AI

1. Logical AI – in general the facts of the specific situation in which an AI agent must act and it’s goals are all represented by sentences of some mathematical logical language. The program designs what to do by inferring that certain actions are appropriate for achieving its goals
2. Research – AI programs often examine a high number of possibilities eg moves in a chess game and inferences by a theory proofing program. Discoveries are frequently made about how to do this more efficiently in various domains
3. Pattern recognition – when a program makes observations of some kind, it is often planned to compare what it has seen with a pattern which…. Eg a computer vision program may try to match a pattern of eyes and nose in a scene in order to find a face
4. Representation-languages of mathematical logic are used to represent facts about the world
5. Inference - this is the kind of reasoning in which conclusion is inferred by default but the conclusion can be withdrawn if there is evidence of a divergence eg if we hear a bat, we infer that it can fly but this can be reversed when we hear that it is a penguin. This kind of inference is referred to as non – monotonic inference and this is the possibility of the initial conclusion to be reversed. Noal logical reasoning is monotonic in that a set of conclusions can be drawn from a set of premises.
6. Common sense knowledge and reasoning – this is an area in which AI is furthest from human level
7. Learning from experience- there are some rules expressed in logic form for learning. Programs can only learn what facts or behavior, their formalisms can represent. Unfortunately all learning systems Ara almost all limited to……..
8. Planning – planning starts with general facts about the world (especially facts about the effects of actions), facts about a particular situation, and a statement of goals. Form this, planning programs generate a strategy of generating a goal
9. Epistemology – this is the study of the kind of knowledge that are required for solving problems in the world.
10. Ontology – is the study of the kinds of things that exist. In AI the programs and the sentences deal with various kind of objects. In AI the programs and sencentces…..
11. Heuristics – a heuristic is a way of trying to discover something of an idea and try to…… heuristic functions are used in some approaches to search or measure how far a node in a search tree seem to be a goal
12. Genetic programing – an automated method for creating a working computer program from a high level problem statement or a program.

Applications of AI

* + AI has applications in all fields such as finnance and economic, environmental engineering, chemistry, computer science etc. Some specific apllication of AI applications are given below

1. perception

-Machine vision

-Speech understanding

-Touch sensation

1. Robotics
2. Natural language understanding

- Natural language processing

-Speech understanding

-Language concentration

-Machine translation

4. planning

- expert systems

-machine learning

-theory improving

-Symbolic mathematics

-game play

Any