Internal Assessment – III

Artificial Intelligence

Part - A

1) Ontology Engineering:

Ontology Engineering is a field which studies the methods and methodology for building Ontologies, which are formal representation of a set of Concepts within a domain and the relationships with those Concepts.

2) Event Calculus:

The Event Calculus is a logical Language for representing and reasoning about events and their effects first Presented by Robert kowalki and Marek Sergot in 1986.

3) Application of AI:

- Astronomy
- Healthcare
- Gaming
- Finance

- Data Security
- Automotive Industry.

4) Natural Language Processing:

NLP is a branch of AI that Studies how machines understand human language. Its goal is to build system that can make sense of text and perform task like translation, grammar checking, or topic classification.

5) Robot:

Any Automatically operated Machine that replace human effort, though it may not resemble human beings in appearance of perform functions in a humanlike manner.

Part- B

7) A) Robotics:

Robotics is an interdisciplinary Feild that integrates Computer Science and Engineering. Robotics involves design, Construction, operation and use of robots. The goal of robotics is to design machines that can help and assist human. Robotics integrates feild of Mechanical, electrical, information, mechatronics, electronics, control, Software engineering Among together.

Contain robot require user input to operate while other function Autonomously

Robotic Asspects:

There are many types of robots; they are used in many different environment and for many different use

Although being very diverse in application and form they all share three basic similarities when it comes to their Construction.

Application:

- Military Robots.
- Cobots
- Construction robot.
- Agriculture robots.
- medical robots.

Hardware Components:

1. Power Source:

At present mostly lead Acid batteries are used as a power source. Many different types of battery can be used as a power source of Robots. However such designs are often mechanically Complex and need a fuel require heat dissipation. This method can be reduce weights.

Actuation:

Actuation are the muscle of the robots, The part which Convert Stored energy into movement. There are Some recent advances in alternative type of actuator. Powered by electrical, Chemical or Compressed Air.

Types:

- Electric motor
- Linear Actuator.
- Series elastic Actuator.
- Air Muscle.
- Muscle wire.

Manipulation:

A definition of robotic manipul has been provided by matt mason as "Manipulation refers to an agent's Control of it environment through Selective Contact.

Mechanical grippers:

One of the most common type of end-effectors are grippers. In its simplest manifestation, it consist of just two finger that can open & close to Pick up and let go to of a small large object.

Locomotion:

Most mobile robots have four wheels to move. These can have certain advantages such as greater efficiency and reduced parts.

Types:

- Two wheeled
- One-wheeled.
- Track bots
- walk applied
- Hopping.
- Flying.

Part-C

8) B.1 <u>Speech recognition:</u>

Speech recognition is the task of identifying a sequence of word uttered by a speaker. given the acoustic signal. It has become one of the mainsystem application of AI- million of people interact with Speech regonction system every day to navigate Voice mail System, Search in web etc...

<u>Segmentation:</u>

Segmentation writtes words in English have Space ten between them. But the fast Speech there are no Pause will distingused as a multiwoord Phase and opposed at the regonistion

Coarticulation:

When speaking quickly the 'S' sound at the end of their merges with the "b" Sound at the beginning of beach Yeild Something That is close to a 'Sp'.

Homophones:

Another problem arise is voice regnocitation in the words with Same Sounds but with different meaning and Spelling. It will Change the meaning of the entire Sentence If it recognize as a mistake.

eg: Son — Son

round — around.

rise — arise

Acoustic model:

It describes the Sound of the words — that "Ceiling" begins with Soft "c" that Sound Same as Sealing.