

1. Human-Machine Interaction

 **AI Reboot** (Page 9)

1. Intention
2. Selection

 **AI Task** (Page 16)

Do it yourself.

AI Quiz

1. d
2. a
3. c
4. a
5. b
6. b

Exercise

- A.** 1. False 2. False 3. True 4. True 5. False
- B.** 1. 1967
2. Voice User Interface
3. John Mauchly and John Presper Eckert
4. Edmund Huey
5. Seiko
6. Nintendo Wii
- C.** 1. To perform a dialog between human and a computer system there are three components that are interconnected— Human, Machine and the interface between them. A computer interface or a program establishes interaction between the user and computer. HMI mainly focuses on this computer interface.
2. Intension, Selection, Execution and Evaluation are the 4 stages with HMI.
3. Command Line Interface (CLI) is a text-based interface that allows to give instructions to a machine in the form of text. On the other hands, Graphical User Interface (GUI) provides icons, button, pictures, etc. on which you can click to perform some action.
4. Ivan Sutherland created the first head mounted display called Sword of Damocles in 1968. It was connected to a computer. The idea behind its creation was to change the perspective image as the user moved his head.
5. In 1967, Ralph Bauer Eckert created the first gaming joystick.

Do it yourself.

2. Introduction to AI

 **AI Reboot** (Page 24)

- **Human intelligence:** It aims to adapt to new environment by utilizing combination of different cognitive processes.
- **Artificial Intelligence:** It aims to mimic human behaviour and perform human like actions.

 **AI Reboot** (Page 27)

A chatbot is an artificial intelligence application that can simulate a conversation or a chat with a user in a natural language through messaging applications, websites, mobile apps or through the telephone.

 **AI Task** (Page 28)

Do it yourself.

AI Quiz

1. d
2. c
3. b
4. d
5. b
6. c
7. c

Exercise

- A.** 1. True 2. False 3. False 4. True
- B.** 1. AI 2. Kevin Ashton 3. Chatbot 4. Cloud computing 5. Smart Buildings
- C.** 1. Artificial Intelligence is the ability of a computer program or machine to think and learn. It also makes any machine perform tasks that requires intelligence.
2. Pac-man and FIFA are AI based games.

3. S.No.	Parameter	Human Intelligence	Artificial Intelligence
1.	Nature	It aims to adapt to new environment by utilising combination of different cognitive processes.	It aims to mimic human behaviour and perform human like actions.



2.	Functioning	Human beings use the computing power, memory and thinking power of their brain.	AI machines rely on data, specific instructions and learnings that are fed into their system.
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4. a. **Smart Devices:** These are part of an ecosystem of devices that can communicate with each other, for example, thermostat, surveillance camera, etc.
- b. **Smart Healthcare:** This includes a series of devices and programs that can be used for patient care and medical purposes, for example, Aarogya setu, Fitness bands, etc.
5. Cloud Computing is a very powerful technology and can be used to enrich almost all the existing computers and similar devices. This can be achieved by providing them with additional computing power and storage space.



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Do it yourself.

3. AI in Apps

AI Quiz

1. c
2. b
3. a
4. b
5. b

Exercise

- A. 1. False 2. True 3. True 4. True 5. True
- B. 1. Ridesharing 2. English Language Speech Assistant
3. Google Maps 4. IBM Watson 5. Kuki
- C. 1. Popularly known as Bot, a chatbot is a computer program that allows humans to interact with technology using a variety of input methods such as voice, text, gesture and touch.
2. A voice assistant is an application program that understands natural language voice commands and completes tasks for the user. It uses voice recognition, speech synthesis, and natural language processing (NLP) to provide a service through a particular application. Examples are Siri and Alexa.
3. Alexa performs better over the period as it adapts the user's voice, vocabulary and choices.
4. Photo editing is a tedious process. Much time is consumed in removing skin's imperfections, aligning tone of the sky, etc. AI editor does it easily for its users. AI technology makes the manual tasks simpler and semi-automatic. It not only saves time but gives great results.
5. Google Maps and Waze are two examples of navigational apps.





Do it yourself.

Test Sheet–1

(Based on Units 1 to 3)

- A.** 1. d 2. c 3. d 4. d 5. c 6. c
7. d 8. b 9. b
- B.** 1. 1967 2. Voice User Interface 3. Smart buildings
4. Voice assistant 5. Ridesharing 6. Kuki
- C.** 1. False 2. False 3. True 4. False 5. True 6. True
- D.** 1. To perform a dialog between human and a computer system there are three components that are interconnected— Human, Machine and the interface between them. A computer interface or a program establishes interaction between the user and computer. HMI mainly focuses on this computer interface.
2. Intension, Selection, Execution and Evaluation are the 4 stages with HMI.
3. Snapchat and Google Maps are the examples of AI based apps.
4. Artificial Intelligence is the ability of a computer program or machine to think and learn. It also makes any machine perform tasks that requires intelligence.
5. Google Maps use AI to analyse the speed of movement of traffic. It also takes in the user-reported incidents, such as traffic accidents or road construction, to predict how long it will take the user to reach his destination and uses that information to suggest the fastest route.
6. Uber and Ola are the ride sharing apps.

4. Types of Robots

Ai Quiz

1. c 2. b 3. d 4. a 5. b

Exercise

- A.** 1. True 2. False 3. False 4. False 5. True
- B.** 1. Marimba-playing 2. Service 3. Furby 4. Humanoid 5. Robots
- C.** 1. Industrial robots, Collaborative robots and Service robots.



2. A collaborative robot, or Cobot, is a type of robot intended to physically interact with humans in a shared workspace. These robots are supposed to work along with the humans and provide safety and flexibility.
3. Industrial robot is a robot system which used for manufacturing purposes. These robots are automated, programmable and capable of movement in three or more axes.
4. These robots either allow surgical operations to be carried out with better precision than an unaided human surgeon or allow remote surgery where a human surgeon is not physically present with the patient.
5. Robots are sent to space because sending a robot in space is much cheaper than sending a human. They don't need to eat or sleep. Hence, they can work for long hours and they can survive in space for many years and can be left out there for further research.



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Do it yourself.

5. Myths and Facts of AI



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Design, entertainment, military training, remote working etc.



1. a
2. c
3. b
4. c

Exercise

- A.** 1. False 2. True 3. True 4. False 5. True
- B.** 1. AR 2. Illusion 3. Internet of Things
4. Google Cardboard or HTC Vive 5. 3D
- C.** 1. Following are the two myths about AI:
 - a. AI is going to take away jobs.
 - b. AI is smarter than people.
2. MR stands for Mixed Reality. It combines elements of both AR and VR, real world and digital object. Microsoft HoloLens is one of the most notable MR apparatuses.
3. VR is abbreviation of Virtual Reality. It is used extensively in the gaming world to give user the feeling of real in the digital world. In VR, everything is created digitally or it can also include 360-degree footages of natural environments or a mix of both. You experience something, without really experiencing it.



4. IoT stands for Internet of Things. It describes the interconnected objects or physical things that are embedded with sensors, software and other technologies to exchange data with other devices and systems over internet.
5. Three-dimensional (3D) printing works by laying down thin layers of material in the form of liquid or powdered plastic, metal or cement, and then fusing the layers together.



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Do it yourself.

Test Sheet–2

(Based on Units 4 & 5)

- A.** 1. c 2. b 3. d 4. a 5. c 6. b
 7. c 8. a 9. c
- B.** 1. Marimba-playing 2. Ironing robots and kitchen robots 3. Furby
 4. Augmented Reality 5. Illusion 6. IoT
- C.** 1. True 2. False 3. False 4. False 5. True 6. True
- D.** 1. Robots either allow surgical operations to be carried out with better precision than an unaided human surgeon or allow remote surgery where a human surgeon is not physically present with the patient.
2. A collaborative robot, or Cobot, is a type of robot intended to physically interact with humans in a shared workspace. These robots are supposed to work along with the humans and provide safety and flexibility.
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5. Mix Reality combines elements of both AR and VR, real world and digital object. Microsoft HoloLens is one of the most notable MR apparatuses.
6. Virtual Reality is used extensively in the gaming world to give user the feeling of real in the digital world. In VR, everything is created digitally or it can also include 360-degree footages of natural environments or a mix of both. You experience something, without really experiencing it.



AI Ready (Page 76)

Do it yourself.



Artificial Intelligence-6 (Ver. 1.1) (Answer Key)

