ANSWER KEY

Artificial Intelligence

1. Evolution of AI

Δi Reboot (Page 12)
ELIZA created in 1966.

Δi Reboot (Page 17)
The name of two voice assistants are Cortana and Siri.

Δi Task (Page 17)
Do it yourself.

Δi Quiz

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

Exercise

A. 1. False   2. True   3. False   4. False

B. 1. Spirit and Opportunity   2. Xbox 360   3. Sophia   4. ASIMO

C. 1. Google Home uses AI to act as a personal assistant helping the user remember tasks, create appointments, and search information by voice.

2. In 1956, John McCarthy coined the term Artificial Intelligence in a conference held at Dartmouth College. It is the ability of a machine to simulate human beings and do intelligent things, such as playing chess.

3. Sophia is a humanoid robot.

Δi In Life (Page 22)
Do yourself.

2. AI-Terminologies

Ai Task (Page 30)

Do it yourself.

___ **Ai Quiz** ___

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

Exercise

A. 1. True

2. False

3. False

4. (This question was printed incorrectly in the book, please correct it in your textbook)

Quest.... Machine Learning is a subset of artificial intelligence.

Ans. True

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

C. 1. Artificial Intelligence is a branch of computer science that pursues the creation of computers and machines which are as intelligent as human beings.

2. An aim of AI is to implement human intelligence in machines.

3. AI in Popular Apps

Ai Task (Page 40)
Do it yourself.

___ **Ai Quiz** ___

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

Exercise

A. 1. True   2. True   3. False   4. True

B. 1. 2010   2. Alexa   3. Siri   4. Practo   5. Netflix

C. 1. Two AI-powered devices are Siri and Alexa.

2. (This question was printed incorrectly in the book, please correct it in your textbook)

   Quest.... What is the use of AI in YouTube?

   Ans... YouTube uses AI to remove fake news and offensive contents and also recommends videos based on your previous search history.

3. Two features of Alexa are as follows:
   • It helps us to set reminders.
   • It manages our smart home.

4. Google Maps provide useful directions and real-time traffic information to millions of users. It is a web mapping or online mapping platform.

5. a. YouTube

   b. Netflix

   c. Siri

   d. Google Assistant

Test Sheet 1

(Based on Units 1 to 3)

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

B. 1. 2010   2. Practo   3. Netflix

C. 1. False

2. True

3. (This question was printed incorrectly in the book, please correct it in your textbook)

   Quest... Machine Learning is a subset of artificial intelligence.

   Ans. True

4. True

D. 1. Google Home uses AI to act as a personal assistant helping the user remember tasks, create appointments, and search information by voice.

2. (This question was printed incorrectly in the book, please correct it in your textbook)

   Quest... What is the use of AI in YouTube?

   Ans. YouTube uses AI to remove fake news and offensive contents and also recommends videos based on your previous search history.

3. An aim of AI is to implement human intelligence in machines.

4. Sustainable Development Goals (SDGs)

Δi Reboot (Page 51)

1. Climate Action
2. Partnership For The Goals
3. No Poverty
4. Quality Education
5. Sustainable Cities and Communities
6. Responsible Consumption And Production
7. Life On Land
8. Clean Water And Sanitation
9. Decent Work And Economic Growth

Δi Task (Page 51)

Do it yourself.

Δi Quiz

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

Exercise

A.

1. False	2. False	3. True	4. False	5. True	6. True

B.

1. 2030	2. 10	3. 16	4. cooperate	5. water	6. economic

C.

1. In 2015, the General Assembly adopted the 2030 agenda for Sustainable Development that includes 17 Sustainable Development Goals (SDGs). These are based on the principle of "Leaving none behind", where it emphasises a holistic approach to achieve SDGs.

   The 17 SDGs were laid to transform the world into a better place to live for everyone.

2. Goal 12 ensures sustainable consumption and production patterns. It aims to achieve efficient use of natural resources and reduce global food waste at retail and consumer level.

3. Goal 15 aims to protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, and combat desertification. It aims to conserve ecosystems, end deforestation and protect biodiversity.

4. Goal 16 aims to promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build accountable institutions. It aims to reduce violence, protect women and child abuse, promote rule of law.

5. Parts of Robots

Ai Task (Page 63)

Wrist ⟶

⟵ Elbow

⟶ End Effector

⟵ Shoulder

Ai Quiz

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

Exercise

A. 1. True   2. True   3. False   4. True

B. 1. Programmable   2. arm   3. Hydraulic   4. CPU

5. Electricity

C. 1. End effector is fixed at the end of the manipulator. Manipulators are usually set and End effectors are free to end. They are expected to perform the tasks traditionally performed by human fingers and palm of a human hand. The end effectors usually do the work. They are attached to the robot's wrist and controlled through a computer.

2. The robot's Manipulator is just like a human arm and has several joints and links. They are electronically controlled devices consisting of multiple sections. A manipulator uses strong links connected by joints with one fixed end and one free end to perform a given job, such as moving a box from one location to another.

3. Two differences between humans and robots are as follows:

S.No.	Humans	Robots
1.	Humans are organic entities.	Robots are mechanical devices.
2.	Once the human body dies, it never comes back to life.	A robot can be repaired.

4. Locomotion Device:

   Human beings use muscles to give movements to their arms, palms and fingers. For a robot, the power comes from motors. Three fuels are used in locomotion, depending on the energy source.

   There are three widespread types of Locomotive devices.

   - **Electric:** This uses magnets and electric current to facilitate movement. They are noiseless and easy to program.
   - **Hydraulic:** This uses oil to facilitate movement. They are used in heavy machinery, which includes mining and construction equipment.
   - **Pneumatic:** This uses air to facilitate movement. They are used in Rock drills, pavement breakers, paint sprayers, etc.

5. Without the data supplied by the sense organs, the human brain cannot perform intelligently in any given situation. Similarly, controllers would be unable to perform if the robot's sensors do not constantly feed the controller about their position, force, temperature, etc. The sensors are the powerhouse of a robot's feedback system and act as eyes and ears. A wide range of sensors is used in a robot system to perform the tasks.

Test Sheet 2

(Based on Units 4 & 5)

A. 1. b   2. c   3. a

B. 1. cooperation   2. water   3. CPU   4. Electricity

C. 1. False   2. True   3. True   4. True

D. 1. Goal 12 ensures sustainable consumption and production patterns. It aims to achieve efficient use of natural resources and reduce global food waste at retail and consumer level.

    2. Locomotion Device

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3. Goal 15 aims to protect, restore and promote sustainable use of terrestrial ecosystems, sustainable manage forests, and combat desertification. It aims to conserve ecosystems, end deforestation and protect biodiversity.

Ai Ready

Do it yourself.