Class 7

Answer Key

Artificial Intelligence (Ver. 1.1)

1. Introduction to AI

Ai Reboot (Page 10)

Human Intelligence	Machine Intelligence
Humans are naturally intelligent.	Machine's Intelligence is created by the humans.
The intelligence level of a human keeps varying with age.	Machine's intelligence level keeps on growing with time, never having a peak or any descent.

Ai Task (Page 13)

Do it yourself.

Ai Quiz

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

Exercise

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

B. 1. Machines 2. Emotions 3. Super AI 4. Narrow

C. 1. AI is a branch of computer science that focusses on developing machines which can think and work like human beings.

2. AI is of three types, Weak AI, Strong AI and Super AI.

3. The characteristics of Super AI are:
   - These systems would be completely autonomous and won't require any kind of human interference.
   - These machine would be smarter than an average human being and would also understand human emotions.

4. The differences between human and artificial intelligence are:

Humans	Artificial Intelligence
Humans are naturally intelligent.	Artificial Intelligence is created by humans.
Intelligence level of human beings vary with time.	Artificial Intelligence keeps on increasing.
Humans behave according to their experience.	Machines perform according to their programming.
Human brain is analogous.	Artificial Intelligence is digital.
Humans can adapt to sudden changes in their surroundings.	Artificial Intelligence takes time to adapt to the changes in their surroundings.

Ai Lab (Page 18)

Do it yourself.

2. Pioneers in the Field of AI

Ai Reboot (Page 22)

1. IBM created Deep Blue.
2. Edward Feigenbaum

Ai Task (Page 22)

Do it yourself.

Ai Quiz

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

Exercise

A. 1. John McCarthy 2. Edward Feigenbaum 3. Ross Quillian
4. Marvin Minsky 5. Artificial Intelligence

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

C. 1. Turing test was a test developed by the brilliant British Mathematician, Biologist and Computer Scientist. This test was developed to determine if a machine can think or not. The test is still a matter of standards today. It states that if a computer can have a conversation with a human via a printer then that machine is thinking.

2. Ross Quillian developed the first semantic web.
3. John McCarthy developed the LISP programming language.
4. Edward Feigenbaum is often called the, "Father of Expert Systems". He was the joint winner of 1994 ACM Turing Award. While he was a student, he developed EPAM (Elementary Perceiver

and Memorizer), one of the first computer models of how people learn, as his Ph.D. project. His project Dendral was the most important to AI Sciences. It used computer systems to identify and communicate the presence of diseases when given spectrometer readings of blood samples. This was the first use of an AI "Expert System".

5. It was an AI system which was dedicated to play chess with an objective to beat a human chess master using AI.

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Do it yourself.

3. Domains of AI

Ai Reboot (Page 28)

Data Science and Natural Language Processing

Ai Task (Page 30)

Do it yourself.

Ai Reboot (Page 33)

Examine crop health and self-driving cars

Ai Quiz

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

Exercise

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

B. 1. Self-driving cars 2. Voice assistants 3. Human intelligence
4. Intelligence

C. 1. There are three main domains of AI.

a. **Natural Language Processing (NLP):** This is a subfield in AI which helps in communication between human and computer in a natural language. It enables a computer to read and understand data by mimicking human natural language.

b. **Data Science:** Data science in AI refers to the process of collecting, analysing, and interpreting large sets of data to enable AI systems to learn, make predictions, and improve their performance.

c. **Computer Vision:** It is a very popular field of AI that trains a computer to understand and interpret the visual world. Human vision starts at the 'eyes' but machine uses digital images from a camera for vision.

2. Data science in AI refers to the process of collecting, analysing, and interpreting large sets of data to enable AI systems to learn, make predictions, and improve their performance. It

involves using various techniques, such as statistics, mathematics, and computer science, to extract meaningful insights from data.

3. Real Life uses of NLP are voice recognition system and smart voice assistant.
4. Computer Vision is a very popular field that trains a computer to understand and interpret the visual world.

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Do it yourself.

Test Sheet–1

(Based on Units 1 to 3)

A. 1. c 2. a 3. d 4. a 5. c
6. c 7. b 8. b

B. 1. Turing test 2. John McCarthy 3. John McCarthy 4. Edward Feigenbaum
5. Self-driving cars 6. Voice assistants

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

D. 1. AI is a branch of computer science that focusses on developing machines which can think and work like human beings.
2. Weak AI, Strong AI and Super AI.
3. Turing test was a test developed by the brilliant British Mathematician, Biologist and Computer Scientist. This test was developed to determine if a machine can think or not. The test is still a matter of standards today. It states that if a computer can have a conversation with a human via a printer then that machine is thinking.
4. Ross Quillian developed the first semantic web.
5. There are three main domains of AI.
   a. **Natural Language Processing (NLP):** This is a subfield in AI which helps in communication between human and computer in a natural language. It enables a computer to read and understand data by mimicking human natural language.
   b. **Data Science:** Data science in AI refers to the process of collecting, analysing, and interpreting large sets of data to enable AI systems to learn, make predictions, and improve their performance.
   c. **Computer Vision:** It is a very popular field of AI that trains a computer to understand and interpret the visual world. Human vision starts at the 'eyes' but machine uses digital images from a camera for vision.
6. Data science in AI refers to the process of collecting, analysing, and interpreting large sets of data to enable AI systems to learn, make predictions, and improve their performance. It involves using various techniques, such as statistics, mathematics, and computer science, to extract meaningful insights from data.

4. Fields of AI

Ai Reboot (Page 41)

It suggests the banks for future outcomes and trends. It also helps banks to identify frauds and detect anti-money laundering patterns.

Ai Reboot (Page 44)

AI helps the banks and financial sectors in various ways. AI predicts future scenarios by analysing past user experiences. This way it suggests the banks for future outcomes and trends. It also helps banks to identify frauds and detect anti-money laundering patterns.

AI assistants, such as chatbots, use artificial intelligence to generate personalized financial advice and natural language processing to provide instant, self-help customer service.

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Do it yourself.

Ai Quiz

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

Exercise

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

B. 1. Artificial Intelligence 2. Computer Vision 3. Machine Learning 4. Shim
5. Essay grading

C. 1. AI in healthcare is used to diagnose ailments, treat patients, develop new drugs and take care of patients.

2. AI in e-commerce helps in interactive and personalized buying experience. With the AI-enabled systems, companies can see their customer's preferences and can boost their sales by reliable and customized shopping experiences.

3. Google Maps are the best examples of use of AI in Navigation. Google Maps use Machine Learning domain of AI to generate predictions of traffic patterns and live traffic conditions based on the sets of data.

4. The Autonomous vehicles or self-driving cars use cameras, radars, sensors and artificial intelligence to travel from one place to another without human intervention. Autonomous Driving is one of the key applications of AI. The sensors generate massive amount of data to make decisions like humans.

5. Education sector can highly benefit with the use of AI. Now, primarily its being used as a tool to develop skills and test systems. Today essay-grading systems are in place to grade the children's thoughts in its primary stage. It can also be used in providing individualized learning, which is a challenging task at teacher's level.

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Do it yourself.

5. Concept of Smart Living

Ai Reboot (Page 61)

Smart Speakers, smart thermostats and smart remote controllers.

Ai Task (Page 61)

Do it yourself.

Ai Quiz

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

Exercise

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

B. 1. Smart home 2. Smart 3. Voice 4. Smartphones
5. Smart Thermostats

C. 1. Smart living is an evolving trend that improves the living standards of people by using smart devices to make the life comfortable.

2. Smart Doorbell, Smart Speakers and Smart Thermostats are the examples of the smart devices use in Smart home.

3.
- **Power Saver:** Smart Homes are great at saving power.
- **Increased Energy Efficiency:** The Smart Home technology makes it possible to make the home energy-efficient.
- **Protect Home and its Belongings:** The home is protected from intruders with AI systems.
- **Interactive Home:** The AI enabled appliances are controlled through voice or smart phones.

4. Smart cameras used to monitor the indoor and outdoor activities . It not only records the movements but also sends alerts for suspicious movements.

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Do it yourself.

6. Future of Artificial Intelligence

Ai Reboot (Page 66)

CCTV based monitoring using AI can help in building surveillance systems to keep a check on potential criminal incidents and security of the residents.

Ai Task (Page 70)

Do it yourself.

Ai Quiz

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

Exercise

A. 1. Traffic management
2. No parking troubles
3. Automated transportation
4. Play our favourite music

B. 1. Computer Vision
2. filtered
3. Transactions
4. Computer Vision

C. 1. AI has the potential to make traffic more efficient, ease traffic congestion, free driver's time, make parking easier, and encourage car- and ridesharing. As AI helps to keep road traffic flowing, it can also reduce fuel consumption caused by vehicles idling when stationary and improve air quality and urban planning.

2. AI will have a huge impact on automated transport. Automated transportation will ensure that there are fewer accidents. Google began testing a self-driving car in 2012. Many other automobile manufacturers like General Motors, Ford, Mercedes, BMW, etc. are in the process of developing driverless car systems.

3. AI can revolutionize the way traffic can be controlled and managed in cities. Congestion can be reduced by route selection, predictive alerts, and route deviation.

4. General Motors and Ford are the two self driving car manufacturers.

Ai Lab (Page 72)

Do it yourself.

Test Sheet–2

(Based on Units 4 to 6)

A. 1. b 2. b 3. c 4. a 5. a
6. b 7. d 8. b 9. b

B. 1. Artificial Intelligence 2. Computer Vision
3. Smart home 4. Smart

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

D. 1. AI in healthcare is used to diagnose ailments, treat patients, develop new drugs and take care of patients.

2. AI in e-commerce helps in interactive and personalized buying experience. With the AI-enabled systems, companies can see their customer's preferences and can boost their sales by reliable and customized shopping experiences.

3. Smart living is an evolving trend that improves the living standards of people by using smart devices to make the life comfortable.

4. Smart speakers, smart thermostats and smart remote controllers.

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