B.K. BIRLA CENTRE FOR EDUCATION

SARALA BIRLA GROUP OF SCHOOLS
A CBSE DAY-CUM-BOYS' RESIDENTIAL SCHOOL

TERM-1 EXAMINATION (2025-26)
ARTIFICIAL INTELLIGENCE

Class: VII   **Time : 2 hrs.**
Date: 15-09-2025   **Max Marks: 50**
Admission No. ……………………   **Roll No. :………..**

ANSWER KEY

I. Multiple Choice Questions : (Answer any 12)   **(12 X 1 = 12)**

(1) Which type of intelligence is related to the ability to understand and create music ?

    (a) Linguistic intelligence   (b) Logical mathematical intelligence

    (c) Musical intelligence   (d) Bodily kinesthetic intelligence

(2) Which type of intelligence is related to the ability to understand and interact with the natural world ?

    (a) Linguistic intelligence   (b) Logical mathematical intelligence

    (c) Musical intelligence   **(d) Naturalistic intelligence**

(3) Who coined the term Artificial Intelligence ?

    (a) Alan Turing   (b) Claude Shannon

    (c) John McCarthy   (d) Cynthia Brezeal

(4) …………is a free PowerPoint plug-in that develops subtitles in real time of what the teacher is saying.

    (a) Open office Translator   (b) Microsoft Translator

    (c) Presentation Translator   (d) PowerPoint Translator

(5) Which one of the following is an artificial intelligence software, a robot writer?

    (a) JACK   **(b) WASP**   (c) Sophia   (d) Penny

(6) How much time does it take for radio waves to cover the distance from Earth to Mars?

    (a) 2 minutes   (b) 10 minutes   **(c) 22 minutes**   (d) None of the above

(7) What is meant by "AI bias" ?

    (a) The tendency of AI systems to favour certain groups or individuals over others

    (b) The fact that AI systems are often not programmed with human values

    (c) The difficulty of ensuring that AI systems are fair and impartial

    (d) All of the above

(8) ………………… is AI generated video or audio content with an intent to deceive.

    (a) Google Meet   (b) Zoom   (c) Meet Fake   **(d) Deep Fake**

(9) ………………… is based on well-founded standards of right and wrong that prescribe what humans ought to do, usually in terms of rights, obligations, benefits to society, fairness or specific virtues.

    (a) Morals   **(b) Ethics**   (c) Rights   (d) Virtues

(10) …………………… is an app, where any textbook can be turned into a smart study guide.

    (a) Cram101   (b) Cram001   (c) Ram101   (d) Cram102

(11) It was found that the facial recognition software employed by tech giants IBM, Microsoft and Google struggled in detecting :

    (a) The faces of animals   (b) The faces of white men

(c) The faces of black women   (d) The faces of primates

(12) To be called a robot, a system should be able to do one or all of the following.

(a) Move around   (b) Sense the environment

(c) Display intelligent behaviour   (d) Move using wheels

(13) …………………….. is the first robot to use artificial intelligence.

(a) Sophia   (b) Vayuputra   **(c) Shakey**   (d) ASIMO

(14) ……………………. are a type of mobile robot which use articulated limbs, such as leg mechanism, to provide locomotion.

(a) Legged Robots   (b) Hilly Robots   (c) Tracked Robots   (d) Bio inspired Robots

(15) An ……………………. is a robot that travels underwater without requiring continuous input from an operator.

(a) Unmanned water vehicle   (b) Unmanned ground vehicle

(c) Unmanned underwater vehicle   **(d) Autonomous underwater vehicle**

II. Fill in the blanks : (Answer any 10)   (10 X 1 = 10)

(1) Emotions

(2) Intelligence

(3) Deep Learning

(4) Thinking About You

(5) Female Pedestrian

(6) DRU

(7) Fashion Mirror Technology

(8) Nao

(9) Roomba

(10) Sophia

(11) Three

(12) Drone

III. Write full form of the following : (Answer any 2)   (2 X 1 = 2)

(a) UGV = Unmanned Ground Vehicles

(b) AUV = Autonomous Underwater Vehicle

(c) UUV = Unmanned Undersea Vehicle

IV. Short Answer Type Questions : (Answer any 7)   (7 X 2 = 14)

(1) Write two definitions of Artificial Intelligence.

Ans. : It is the study of a system that act in such a way it seems intelligence like human being. Ai is the ability of digital computers or computer controlled robots to solve problems that are normally associated with the higher intellectual processing capabilities of humans.

It is way to evaluate a machine's ability to show intelligence behaviour indistinguishable that of a human.

(2) What are self-driving cars ? Explain.

Ans. : **Self-driving cars**, also known as **autonomous vehicles**, are vehicles that use **artificial intelligence (AI)**, **sensors**, **cameras**, **radar**, and **software** to drive themselves without direct human input. Based on studies in the field of transportation and computer science, these cars are designed to perceive their surroundings, interpret traffic signals, detect obstacles, and make decisions in real-time — similar to a human driver.

Self-driving cars operate using advanced technologies such as **machine learning**, **computer vision**, and **deep learning algorithms**. These systems allow the car to understand road conditions, follow

traffic rules, and even respond to unexpected situations. Research shows that self-driving cars have the potential to **reduce accidents**, **improve traffic flow**, and **increase accessibility** for people who are unable to drive. However, experts also emphasize the importance of further testing, safety regulations, and ethical considerations before they can be widely adopted.

(3) Why did the AI chat bot by Microsoft close down after some hours of operation ?
Ans. : The AI chatbot by Microsoft, named Tay, was shut down after only a few hours of operation due to it quickly learning and repeating inappropriate and offensive content.

Tay was designed to engage in conversation with users on Twitter and learn from those interactions. some users exploited Tay's machine learning algorithms by sending it offensive and harmful messages.
This is why, Microsoft decided to close down AI chat bot after some hours.

(4) Define Ethics and its importance.

Ans. : Ethics in AI refers to the moral principles and guidelines that govern the development, deployment, and use of artificial intelligence (AI) technologies.
As AI systems become more integrated into various aspects of society, ensuring their ethical use is critical to avoid harm and maximize benefits.
Key Ethical Considerations in AI:
i.   Fairness and Non-Discrimination
ii.   Privacy and Data Protection:

(5) Explain the future of AI in Entertainment.
Ans. :

- AI will create more **personalized experiences**, recommending movies, shows, and games tailored to each user's taste.

- It will be used for **realistic animations, special effects, and virtual actors** in films and games.

- AI can generate **interactive stories** and adapt plots in real-time based on audience reactions.

- It will also enhance **music composition, video editing, and content creation**, making production faster and more creative.

(6) How is Dominos using AI in retail ?
Ans. : Dominos is working on a Robotic unit called DRU (Dominos Robot Unit)- which will deliver foods and drinks via the best optimised path. Though such units are not commercially available yet, you shouldn't be surprised to see a robot delivering your pizza, right at your door.

(7) Define Robotics.
Ans. : Robotics is a branch of engineering that deals with creation, design, production and use of robotics. The goal of the field of robotics is to develop smart machines that can help people in a variety of ways. A robot is made of a variety of sensors, actuators, a "Brain" Microprocessor and communication tools.

(8) List the various generations of Robots and explain any one.
Ans. :

1. First Generation (1950s-1960s): Fixed Automation Robots
   Example: Unimate (1961) – The first industrial robot used by General Motors for automated tasks like welding and material handling. These robots were pre-programmed and could perform repetitive tasks.
2. Second Generation (1970s-1980s): Programmable Robots
   Example: PUMA (Programmable Universal Machine for Assembly) – Developed by Unimation, these robots could be reprogrammed to perform different tasks. They were used in various industries for assembly, welding, and other manufacturing processes.
3. Third Generation (1980s-1990s): Autonomous Robots
   - Example: SCARA (Selective Compliance Articulated Robot Arm) – These robots had sensors and simple AI, allowing them to adapt to changes in their environment. SCARA robots were widely used for pick-and-place tasks in manufacturing.
4. Fourth Generation (1990s-2000s): Intelligent Robots
   - Example: ASIMO by Honda (2000) – A humanoid robot with advanced AI, capable of walking, recognizing faces, and interacting with people. These robots could make decisions based on sensory input and were used in service industries and research.
5. Fifth Generation (2010s-Present): Collaborative and Autonomous Robots
   - Example: Baxter by Rethink Robotics (2012) – A collaborative robot (cobot) designed to work alongside humans safely. Equipped with AI and machine learning, these robots can learn tasks and adapt to human interaction, widely used in manufacturing and logistics.
6. Sixth Generation (Emerging): AI-Integrated, Highly Autonomous Robots
   - Example: Boston Dynamics' Spot (2019) – A quadruped robot capable of navigating complex terrains autonomously, used in inspection, security, and rescue missions. This generation is characterized by deep learning, advanced AI, and robots capable of complex decision-making and learning from their environments.

(9) Define Aerial robots ? List its types.
Ans. : Aerial robots, referred to as Unmanned Aerial Vehicles (UAVs) or drones, are a type of unmanned robot designed for flight. They are widely used in various fields due to their ability to access areas that are difficult, dangerous, or impossible for humans to reach.

Multirotor Drones:Quadcopters: The most common type, with four rotors. They are stable, easy to control, and used for photography, surveillance, and small deliveries.

Fixed-Wing Drones:These drones have a rigid wing structure and are similar in design to airplanes. They are more efficient for covering long distances and are often used in mapping, surveying, and agricultural monitoring.

(10) Describe the various types of underwater robots.
Ans. : Light Work ROVs- Inspection of underwater infrastructure, shallow water research, and light repair tasks.

Heavy Work ROVs- Deep-sea exploration, underwater construction, and maintenance of offshore platforms.

Micro ROVs- Compact Size- Ideal for inspecting small or confined spaces, such as pipes, tanks, and small underwater structures.

Mini ROVs are small, versatile remotely operated vehicles designed for a range of underwater tasks in environments.

IV. Long Answer Type Questions : (Answer any 4) (4 X 3 = 12)

(1) Write two advantages and disadvantages of Artificial Intelligence.

Ans. :

Advantages-

  i. Accuracy: AI systems can process large amounts of data quickly and accurately, leading to more precise results compared to human performance in certain tasks, such as data analysis and pattern recognition.
  ii. Decision Making: AI systems can analyse complex data and make data-driven decisions faster than humans. This can lead to better decision-making in various fields, including finance, healthcare, and manufacturing.

Disadvantages-

  i. Job Displacement: AI automation can lead to job displacement as tasks traditionally performed by humans are automated. This can result in unemployment and socioeconomic challenges, particularly for workers in industries heavily affected by AI adoption.
  ii. Privacy Concerns: AI systems often rely on vast amounts of personal data to function effectively. This raises concerns about privacy violations and data security breaches, especially as AI applications become more pervasive in society.

(2) Discuss the use of artificial intelligence in the field of :

(a) Transport (b) Education (c) Sports

(a) Transport:
Artificial Intelligence is significantly transforming the transport sector by enhancing safety, efficiency, and convenience. AI is at the core of self-driving vehicles, enabling them to interpret traffic conditions, recognize objects, and make real-time decisions. It also plays a vital role in traffic management systems by analyzing data to reduce congestion and optimize signal timings. In logistics, AI helps in route optimization, fuel efficiency, and predictive maintenance of vehicles, minimizing downtime and operational costs. Public transport systems benefit from AI through improved scheduling, demand forecasting, and customer service chatbots, making travel more reliable and user-friendly.

(b) Education:
In the field of education, Artificial Intelligence is helping to create more personalized and accessible learning experiences. AI-powered platforms can adapt to individual student needs, offering customized content and real-time feedback. Teachers benefit from automated grading systems that save time and allow them to focus more on instruction. AI also enhances learning support through virtual tutors and chatbots that assist students outside of classroom hours. Moreover, AI tools support inclusive education by providing features like speech-to-text, real-time translation, and learning assistance for students with disabilities, thus fostering a more equitable learning environment.

(c) Sports :

• AI is used to **analyze player performance** and provide data-driven training suggestions.
• It helps in **predicting match outcomes** and developing game strategies using past performance data.
• AI-powered cameras and sensors assist in **referee decisions** (e.g., VAR in football, Hawk-Eye in tennis).
• It also enhances **fan engagement** through personalized content and virtual experiences.

(3) A hospital shares the details of the patients with an insurance company. Do you think it is ethical? Why/Why Not?

Ans. : The ethicality of a hospital sharing patient details with an insurance company depends on various factors, including consent, the purpose of the data sharing, and the measures taken to protect patient privacy.

Ethical: If the information is shared for legitimate purposes, such as processing insurance claims, ensuring appropriate billing, or improving healthcare services, it can be considered ethical.

Unethical: If the data is shared for purposes not directly related to patient care or insurance claims, such as marketing or third-party profit, it is unethical.

(4) Describe the robot Nao, a humanoid robot.

Ans. : Nao is a humanoid robot that talks, moves and teaches children from ages seven and up everything from literacy to computer programming. Nao engages children and provides a fun coding lab for students. It allows students to instruct the robot to perform certain things, such as hand gestures, emotional movements and even choreographed dances.

(5) Explain the three laws of Robotics.

Ans. : The Three Laws of Robotics, formulated by science fiction writer Isaac Asimov, are a set of ethical guidelines for the behavior of robots:

1. **First Law:** A robot may not injure a human being or, through inaction, allow a human being to come to harm.
2. **Second Law:** A robot must obey the orders given to it by human beings, except where such orders would conflict with the First Law.
3. **Third Law:** A robot must protect its own existence as long as such protection does not conflict with the First or Second Law.

(6) Differentiate between manual and automatic robots.

Ans. :
Manual Robots: Operated directly by a human, often via remote control or direct manipulation. The human operator controls the robot's movements and actions in real-time.

Automatic Robots: Operate autonomously or semi-autonomously, using pre-programmed instructions, sensors, and algorithms. They make decisions and perform tasks without real-time human intervention.

*********** ALL THE BEST ************