



Class: IX

Department: Computer Science

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Worksheet No: 1

ARTIFICIAL INTELLIGENCE

CHAPTER 1: INTRODUCTION TO ARTIFICIAL INTELLIGENCE

PART A-Objective Type Questions (1 Mark Each)

a. Fill in the blanks with correct answers:

1. _____ and _____ are AI based applications that help us in navigation.
2. _____ is the father of Artificial intelligence.
3. With reference to AI domain, expansion of CV is: _____
4. The _____ Sustainable Development Goals (SDGs) were launched at the United Nations Sustainable Development Summit in New York in the year 2015, forming the 2030 Agenda for Sustainable Development.
5. 2.37 billion people are without food or unable to eat a healthy balanced diet on a regular basis. The Sustainable Development Goal to solve this problem is _____.

b. Choose the correct answer from the options given:

6. An application lets you search what you see, get things done faster and understand the world around you – using just your camera or a photo. Which domain does this app belong to?
 - a) Natural Language Processing
 - b) Data Sciences
 - c) Computer Vision
 - d) Artificial Language Processing
7. Which of these an ethical concern for humans
 - a. Data privacy
 - b. Moral Issues
 - c. AI bias
 - d. All the above
8. Smart assistants such as Alexa, Siri are the examples of
 - (a) Natural Language processing
 - (b) Data Science
 - (c) Machine Learning
 - (d) Computer Vision

9. Which one of the following is an application of AI?
- a. Remote controlled Drone
 - b. Self-Driving Car
 - c. Self-Service Kiosk
 - d. Self-Watering Plant System
10. Search engines not only predict what popular searches may apply to your query as you start typing, but it looks at the whole picture and recognizes what you're trying to say rather than the exact search words. This is an example of
- (a) Computer Vision
 - (b) Data Sciences
 - (c) Natural Language Processing
 - (d) Natural Language Understanding

c. Give answer in one word:

11. Who coined the word Artificial Intelligence?
12. When you search for 'Doctor' on a search website, the results for Doctor images might mostly come up as 'male'. Whereas for 'Nurse' most results would be 'female'. What does this depict?
13. With so many people using electricity on a daily basis—whether it is to charge their cell phones or to use their TV—a lot of cables (made of plastic) must be used. Plastic destroys our ecosystem, yet we continue to produce it. Indispensable as it may seem, it has an adverse effect on the environment. The manufacturing of plastic is not exactly ecofriendly. With a little help from modern technology Elsa discovered a way to help curb our plastic problem. She used banana peels as the main ingredient to make bio-plastics. Which of the Sustainable Development Goal does this scenario relate to?
14. Name the field which is enabling computers to identify and process images like humans do.
15. AI ethics is a blanket term used for dealing with all the ethical issues related to AI. (True/False)

PART B- Subjective Type Questions (2 Mark Each)

16. Define Artificial Intelligence.
17. Mention four examples of artificially intelligent applications in our smartphones.
18. Explain AI Bias with example.
19. How can AI help in life below water SDG?
20. How do machines become artificially intelligent?

PART B- Subjective Type Questions (4 Mark Each)

21. Explain how AI works in the following areas:
- a. Google Search Engine
 - b. E-commerce websites
22. Explain AI Domains Data and Computer Vision with examples.
23. Explain any two advantages of implementing smart schools.
24. What skills do we need to get a job in artificial intelligence?
25. Explain how AI projects impact on SDG8, SDG9, SDG10 and SDG11.

Answers

1. Google Maps, GPS, Ola .
2. John McCarthy.
3. Computer Vision.
4. 17
5. Goal 2: Zero Hunger. (SDG 2)
6. c) Computer Vision
7. d. All the above
8. a) Natural Language processing
9. c) Self-Driving Car
10. c) Natural Language Processing
11. John McCarthy.
12. AI Bias
13. SDG 12 Responsible consumption, and production.
14. Computer Vision
15. True
16. AI can be defined as the ability of computer systems i.e. hardware and software, to do tasks that normally required human beings to use intelligence.
17. Phone Smart Lock / Snapchat filter / Shopping websites / Netflix / YouTube / Face Detection / Google Maps / Emotions recognition / Google assistant / Natural language recognition / image detection / beauty filters etc. (2 marks for any four right examples)
18. Bias means to be on one side or to favor one side, One can be bias against a decision, belief, individual or a Group. A machine can have intelligence, but we cannot expect a machine to have any biases of its own. Any bias can transfer from the developer to the machine while the algorithm is being developed. Example: when we search on Google for salons, the first few searches are mostly for female salons
19. **Life below water (SDG - 14):** The life below water like animals living under the sea, under the river plays an important role in maintaining temperature and makes the earth suitable for all of us. AI can impact on these by recording their needs and improve the supply chain.
20. A machine becomes intelligent by training with data and algorithm. AI machines keep updating their knowledge to optimize their output.

OR

Machines also become intelligent once they are trained with some information which helps them achieve their tasks. AI machines also keep updating their knowledge to optimize their output.

21. a. Google Search Engine:
With the help of AI, Google Search Engine has been turned into intelligent search which is a new network of systems that produces direct answers. It uses voice and image searches and has incorporated deep learning to fasten the searches with more accuracy.
- b. E-commerce website:
With the use of big data, AI in E-Commerce is impacting customer choices by recording the data of previous purchases, searched products, and online browsing habits. Product recommendations provide multiple benefits for E-commerce retailers including: Higher number of returning customers.

22. **Data Science:** It is the Domain of AI related to data systems and processes. The data can be audio, visual and text. The steps involved to process the data are:

Collect data

Analyze trends in data

Make decisions from data

eg: AI enabled attendance monitoring system, price comparison website

Computer Vision: It is a field of science that deals with how computers gain a high level of understanding from digital images or videos. It is a flow that studies how the human visual system works.

The computer vision includes the following methods to produce information:

Acquiring Images

Processing Images

Analyzing Images

Understanding Images

Eg: face lock in smartphones, Home security systems, Office security systems, Drone-based surveillance systems etc

23. 1. Ability to Interact With Anyone Around any Corner of the World:

The smart technology allows one to remotely interact with any person through collaborating via virtual learning platforms. Educational institutions can interact with students and manage the huge user base without worrying about communication gaps.

2.Go 'Green' by Replacing Paper with Digital Tools

The dynamic sharing of information and resources cuts down the need for paper, pen, printouts, etc. required for the learning process, and is the most vital advantage of smart school.

24. 1. Communication skills: This is an essential skill for every job. Communication helps a person in many ways.

2. Knowledge of Basic Maths and Science: A person must have good knowledge of basic maths and science principles to understand and work with AI.

3. Applied mathematics: Many systems and AI tools using applied mathematics concepts. Some AI research also requires applied mathematics principles.

4. English speaking and Listening: As dealing with technology and other concerns the English language will be an added advantage for future high paying jobs.

5. Techno Savvy: Techno savvy refers to the knowledge of basic computers and online communication medium which is very essential in today's scenarios too.

6. Machine Learning: It essential for future jobs related to AI. A person who deals with AI that also deals with Machine Learning projects.

7. Data Science: As you are familiar with the domain of AI, Data is playing a key role in jobs related to AI.

8. Programming Languages: Programming languages like python, R, Go, etc. are part of AI tools and technology. So it is also a mandatory part for job seekers.

9. Data Analysis: Many big companies have a job role as a Data Analyst who is responsible for data analysis. Data analysis help in taking the right decision.

10. AI research: It is advanced skill for job for future development and implementation of AI as well current growth

25. **Decent Work and Economic Growth (SDG - 8):** The market heavily relies on data analysis. These data may not be available in low and middle-income countries. Hence the work culture may be impacted.

Industry Innovation and Infrastructure (SDG - 9): AI system helps in industry innovation in terms of solving complex problems. It can handle complex operations easily. It can also handle the infrastructural issues with advancement.

Reduce Inequalities (SDG - 10): By using AI tools inequalities can be reduced as AI tools do not have any emotions. They can produce the results better than other tools. If we take the example of AI used by social media websites to show up the contents of users' interest in his profile. Another example is job creation using AI tools.

Sustainable Cities and Communities (SDG - 11): AI is capable to create smart cities that provide efficient resources to the people