INDIAN SCHOOL AL WADI AL KABIR

Class: X	Department: Computer Science
WORKSHEET1-	ARTIFICIAL INTELLIGENCE (417) Part B Unit 1 Introduction to Artificial Intelligence

1 mark Questions

1. _____is a domain of AI that depicts the capability of a machine to get and analyse visual information and afterwards predict some decisions about it.
   a) NLP b) Data Sciences c) Augmented Reality **d) Computer Vision**

2. Which of the following is not an example of Computer Vision?
   a) seeing an image to identify the object in it.
   b) identifying humans or animals in an image.
   c) understanding the emotion of a human in the image
   d) adding colour effect to an image.

3. Which test was designed to know if a machine is intelligent or not?
   a) Watson Test b) Deep Blue Test c**) Turing Test** d) Andrew Test

4. Which of these is an example of AI in e-commerce applications?
   a) Login b) checkout c**) Recommendations** d) Logout

5. Pick the odd one out and justify your answer:
   a) Snap Chat Filter b) Face Lock in Phone c**) Chatbot** d) Image search Option

6. Mr. X has high interpersonal intelligence. He _____.
   a) can read books very fast. b**) makes friends quickly**. c)can interact with animals. d) is a good cook.

7. Deep learning is a subset of Machine Learning.
   a) **True** b)False c)N/A

8. Which of these are some ethical issues around AI?
   a) Bias and fairness b) Accountability d) Cyber Security and Malicious use d**)All of these**

9. Unscramble the letters and find which is not a virtual assistant.
   a**)LZEIA** b)IIRS c)LAEAX d)AACTRON

10. Which of these domains and technologies play an important role in agriculture for analysing the best crop type and potential issues?
    a) Computer Vision **b) Data Science** c) NLP d) All of these

11. The first humanoid to be given Saudi Arabian Citizenship is _____
    a) Alexa b**) Sophia** c)Gary d) Siri
12. Bias in an AI system may be comes through _____ .

a) data b) developers c) **Both the data and developers** d)None of these

13. Which government organization in India is driving National AI strategy?
    a) HRD b**) NITI Aayog** c) IT d) Law

14. Fill in the Blanks:
    1. The basis of decision making depends upon the availability of _____and how we experience and understand it. (information/data/conditions/ past experience/ knowledge/awareness.)
    2. A machine can also become intelligent if it is trained with _____ which helps them achieve their tasks (data)

2 Mark Questions

15. Define Artificial Intelligence.

    A machine is artificially intelligent when it can accomplish tasks by itself - collect data, understand it, analyze it, learn from it, and improve it.

    OR

    When a machine possesses the ability to mimic human traits, i.e., make decisions, predict the future, learn and improve on its own, it is said to have artificial intelligence.

16. How does a machine become Artificially Intelligent?

    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.

17. Mention four examples of machines that are not AI but confused with AI.

    O

    Mention four examples of machines that are smart but not AI.

    Automatic gates in shopping malls / remote control drones/ a fully automatic washing machine/ Air Conditioner/ Refrigerator/ Robotic toy cars/ Television etc.

18. Explain how AI works in the following areas (any two):
    a. Google Search Engine b. Voice Assistants c. E-commerce websites

    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. Voice assistant: AI is being used in voice assistants to recognize words spoken by the user. NLP has capabilities like “Speech-to-Text” convert the natural language of the user into text for further processing. As the digital assistant answers more and more queries, it “learns” using ML algorithms. The more tasks it performs, its ML algorithms help it “learn” from the tasks and the preferences of the user. As a result, the digital assistant improves its performance over time.

    c. 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.

4 Mark Questions

19. What is Intelligence? Explain in brief any three types of intelligence that are mainly perceived by human beings?

Intelligence is the 'ability to perceive or infer information, and to retain it as knowledge to be applied towards adaptive behavior within an environment or context.'

OR

Intelligence is the ability to interact with the world (speech, vision, motion, manipulation), ability to model the world and to reason about it, ability to learn, ability to make decisions and to adapt.

OR

Intelligence has been defined in many ways: It involves abstract reasoning, mental representation, problem solving, and decision making, the ability to learn, emotional knowledge, creativity, and adaptation to meet the demands of the environment effectively.

As per major researches, there are mainly 9 types of Intelligence;

(i) Mathematical Logical Intelligence: A person's ability to regulate, measure, and understand numerical symbols, abstraction and logic

(ii) Linguistic Intelligence: Language processing skills both in terms of understanding orimplementation in writing or speech.

(iii) Spatial Visual Intelligence: It is defined as the ability to perceive the visual world and the relationship of one object to another.

(iv) Kinesthetic Intelligence: Ability that is related to how a person uses his limbs in a skilled manner.

(v) Musical Intelligence: As the name suggests, this intelligence is about a person's ability to recognize and create sounds, rhythms, and sound patterns

(vi) Intrapersonal Intelligence: Describes the level of self-awareness someone has starting from realizing weakness, strength, to recognizing his own feelings

(vii) Existential Intelligence: An additional category of intelligence relating to religious andspiritual awareness.

(viii) Naturalist Intelligence: An additional category of intelligence relating to the ability to process information on the environment around us.

(ix) Interpersonal Intelligence: Interpersonal intelligence is the ability to communicate with others by understanding other people's feelings and the influence of the person.

20. Differentiate between what is AI and what is not AI with the help of an example?

AI Machine	**Not AI machine**
1. AI machines are trained with data and algorithm. 2. AI machines learn from mistakes and experience. They try to improvise on their next iterations. 3. AI machines can analyses the situation and can take decisions accordingly. 4. AI based drones capture the real-time data during the flight, processes it in real-time, and makes a human-independent decision based on the processed data.	1. Smart machines which are not AI, do not require training data, they work on algorithms only. 2. Smart machines work on fixed algorithms and they always work with the same level of efficiency, which is programmed into them. 3. Machines which are not AI cannot take decisions on their own. 4. An automatic door in a shopping mall, seems to be AI-enabled, but it is built with only sensor technology.

21. How intelligent robots are helping us in accomplishing dangerous jobs?

    Robots let humans avoid some hurtful work:

    (i) Lifting up heavy material at the construction site.

    (ii) Stirring and mixing metals or liquids at a high temperature.

    (iii) Collecting and packaging of radioactive waste.

    (iv) Working in contaminated and dusty environments.

22. How AI helps in giving you personalized experience online?

    AI based recommendations: AI uses advanced machine learning algorithms to analyze browser history, page clicks, social interactions (likes, shares), past purchases, the duration for which a page was viewed, location, etc. to gauge customer interests and preferences. AI can help deliver product recommendations based on frequently bought items, or related products. It can even help customize web pages and elements to suit a customer's needs. For instance, Netflix does intense behavior analysis based on behavior and demographic data to determine the content that will resonate with their customers.

    Chatbots and Automated Messaging: AI-powered chatbots and messaging agents can enhance the customer experience across channels. They can answer simple queries, engage customers, efficiently handle multiple interactions,

    Automated Service Interactions: AI-driven programs can send automated messages to customers regarding a pending service, a part replacement, or a regular order.

    Curating Select Products: Amazon has come up with the concept of the Amazon 4-star retail store. Products that have received a multitude of 4-star ratings will be offered in this physical store. Amazon will use its product recommendation engine to identify trending products and customers' favorites and bring them to a brick and mortar setting.

23. List the three domains of AI and the data that is used in these domains and Explain in detail.

    In AI human-machine interactions done through the following domains:

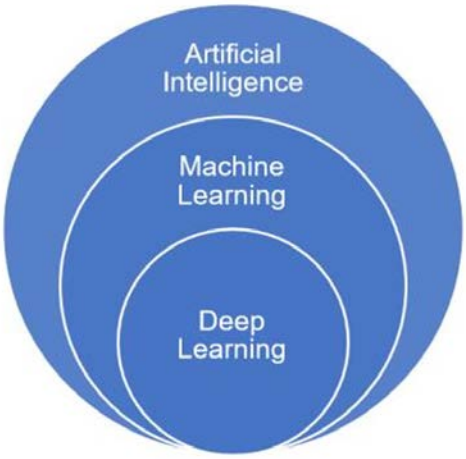
    Data: If a person thinks of automate any system or want a report or analysis of customers feedback, data is required. For example: Taking students daily attendance we need data of students like class, roll number, student name, etc This data can be in any form textual information, audio, video, big data like predictions, insights, forecasts, decision making, etc.

    Computer Vision (CV): It is a field of science that deals with how computers gain a high level of understanding from digital images or videos. Computer Vision is mainly used for Face recognition systems to recognize the faces in images and videos. The application areas like google photos, spam chat, Facebook, Instagram etc.

    Natural Language Processing (NLP): The programming languages work on their own principles, syntax, and keywords. The aim of NLP is developing such systems that work on human natural language on oral as well-spoken language.

24. Differentiate between Artificial Intelligence vs Machine Learning vs Deep Learning

Artificial Intelligence	Machine learning	Deep Learning
AI represents stimulated intelligence in machines.	ML is the practice of getting machines to make decisions without being programmed.	It is artificial neural network to solve the complex problems.
AI is a subset of data science.	ML is the subset of AI and data science.	DL is the subset of AI , ML and data science.
AI aims toward building machines that are capable to think like humans	ML aims to learn through data to solve problems.	DL aim to build neural network that automatically discover patterns for feature detection



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