INTRODUCTION TO AI

Q1. Humans are developing machines to make their life _____
a. Complicated
b. Difficult
c. Easier
d. Slow
Ans. c. Easier

Q2. Humans are working hard to create machines with an intent of accomplishing tasks which are _____
a. Too tedious for humans
b. Time consuming
c. Both of the above
d. None of the above
Ans. c. Both of the above

Q3. Machines are designed for _____
a. sharing our load
b. making our life easier
c. completing task in less time
d. All of the above
Ans. d. All of the above

Q4. Identify the wrong statement.
a. A machine is artificially intelligent when it can accomplish tasks by itself – collect data, understand it, analyse it, learn from it, and improve it.
b. Machines become intelligent once they are trained with some information which helps them achieve their tasks
c. AI machines keep updating their knowledge to optimize their output.
d. None of the above
Ans. d. None of the above

Q5. Today's phones can do much more than just call-up people like _____
a. They help us in navigating.
b. They help us in playing games.
c. They help us to maintain a record of our health and fitness.
d. All of the above
Ans. d. All of the above

Q6. We can't make "good" decisions without _____
a. Computer
b. Mobile
c. Information
d. Calculator
Ans. c. Information

Q7. A Category of intelligence relating to the ability to process information on the environment around us is _____
a. Musical Intelligence

b. Naturalist Intelligence
c. Interpersonal Intelligence
d. Kineasthetic Intelligence
Ans. b. Naturalist Intelligence

Q8. A person's ability to regulate, measure, and understand numerical symbols abstraction and logic is called _____
a. Mathematical Logical Reasoning
b. Musical Intelligence
c. Intrapersonal Intelligence
d. Linguistic Intelligence
Ans. a. Mathematical Logical Reasoning

Q9. _____ is defined as the ability to perceive the visual world and the relationship of one object with other.
a. Mathematical Logical Reasoning
b. Musical Intelligence
c. Spatial Visual Intelligence
d. Linguistic Intelligence
Ans. c. Spatial Visual Intelligence

Q10. _____ is the ability to recognize and create sounds, rhythm and sound pattern.
a. Mathematical Logical Reasoning
b. Musical Intelligence
c. Spatial Visual Intelligence
d. Linguistic Intelligence
Ans. b. Musical Intelligence

Q11. A category of intelligence relating to the ability to process information on the environment around us is called _____
a. Existential Intelligence
b. Naturalist Intelligence
c. Kineasthetic Intelligence
d. Intrapersonal Intelligence
Ans. b. Naturalist Intelligence

Q12. _____ is the ability to communicate with others by understanding other people's feelings.
a. Existential Intelligence
b. Naturalist Intelligence
c. Kineasthetic Intelligence
d. Interpersonal Intelligence
Ans. d. Interpersonal Intelligence

Q13. All humans have all the _____ intelligences but at different levels.
a. 7
b. 8
c. 9
d. 10
Ans. c. 9

Q14. _____ comprises the crucial part of intelligence.
a. Understanding

b. Decision Making
c. Self Awareness
d. Recognition
Ans. b. Decision Making

Q15. We can't make "good" decisions without information.(T/F)
a. True
b. False
Ans. a. True

Q16. To make a good decision about any situation, we should use _____
a. Past experience
b. Knowledge
c. Information
d. All of the above
Ans. d. All of the above

Q17. 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 _____.
a. Artificial Intelligence
b. Natural Intelligence
c. Machine Understanding
d. Machine Intelligence
Ans. a. Artificial Intelligence

Q18. Which of the following statement is wrong?
a. Machines become intelligent once they are trained with some information which helps them achieve their tasks.
b. AI machines also keep updating their knowledge to optimise their output.
c. Humans become more and more intelligent with time as they gain experiences during their lives.
d. None of the above
Ans. d. None of the above

Q19. Which of the following are common examples of Voice Assistants?
a. Alexa
b. Cortana
c. Siri
d. All of the above
Ans. d. All of the above

Q20. Platforms like Netflix, Amazon, Spotify, YouTube etc. show us recommendations on the basis of what we like. This become possible because of _____
a. Artificial Intelligence
b. Machine Intelligence
c. Platform Intelligence
d. Application Intelligence
Ans. a. Artificial Intelligence

Q21. Cortana, Siri are common examples of the _____
a. Antivirus
b. Voice Assistants
c. Operating System
d. Computer Commands

Ans. b. Voice Assistants

Q22. Which of the following are examples of Artificial Intelligence?
a. Google Maps
b. Voice Assistants
c. Facial Detection and Recognition
d. All of the above
Ans. d. All of the above

Q23. _____ is the world's first humanoid.
a. Sophia
b. Sophy
c. Stephen
d. Softy
Ans. a. Sophia

Q24. Any machine that has been trained with data and can make decisions/predictions on its own can be termed as _____
a. MI
b. AL
c. AI
d. IOT
Ans. c. AI

Q25. Which of the following is not an example of AI?
a. Fully Automatic Washing Machine
b. Weather Forecast
c. Facial Recognition
d. Google Maps
Ans. a. Fully Automatic Washing Machine

Q26. An air conditioner can be turned on and off remotely with the help of internet but still needs a human touch. This is an example of _____
a. Artificial Intelligence
b. Internet of Things
c. Machine Learning
d. Artificial Learning
Ans. b. Internet of Things

Q27. _____ is the 'ability to perceive or infer information, and to retain it as knowledge to be applied towards adaptive behaviors within an environment or context.
a. Intelligence
b. Mind game
c. Man Power
d. Human Nature
Ans. a. Intelligence

Q28. Which of the following is an AI enabled?
a. A machine that gets trained first on the training data and then optimizes itself according to its own experiences
b. A machine which can automate our surroundings with the help of sensors.
c. A machine which is not trained with any data.
d. None of the above

Ans. a. A machine that gets trained first on the training data and then optimizes itself according to its own experiences

Q29. A technology that could mimic human intelligence is _____
a. AP
b. MI
c. AL
d. AI
Ans. d. AI

Q30. What is the meaning of 'K' in 'KWLH'?
a. What I want to Know?
b. What I Know?
c. Know
d. How I learnt this?
Ans. b. What I Know?

Q31. When a machine perform cognitive tasks like thinking, perceiving, learning, problem solving and decision making. It is called ____
a. AI enabled machine
b. Electronic Machine
c. Electrical Machine
d. Smart Machine
Ans. a. AI enabled machine

Q32. According to "World Economic Forum" – Artificial Intelligence is _____
a. the ability of machines to perform cognitive tasks like thinking, perceiving, learning, problem solving and decision making
b. the software engine that drives the Fourth Industrial Revolution.
c. not a well-defined technology and no universally agreed definition exists
d. the ability of a digital computer or computer-controlled robot to perform tasks commonly associated with intelligent beings.
Ans. b. the software engine that drives the Fourth Industrial Revolution.

Q33. "AI is not a well-defined technology and no universally agreed definition exists." This definition of AI is given by _____
a. NITI Aayog
b. World Economic Forum
c. European Artificial Intelligence
d. Encyclopedia Britannica
Ans. b. World Economic Forum

Q34. ML stands for _____
a. Machine Lesson
b. Man Learning
c. Machine Learning
d. Machine List
Ans. c. Machine Learning

Q35. _____gives the ability to machines to recognize a human's face; to move and manipulate objects; to understand the voice commands by humans.
a. Machine Learning
b. Deep Learning

c. Artificial Intelligence
d. All of the above
Ans. c. Artificial Intelligence

Q36. Which of the following enable machines to learn by themselves using the provided data and make accurate Predictions/ Decisions?
a. Artificial Intelligence
b. Deep Learning
c. Machine Learning
d. None of the above
Ans. c. Machine Learning

Q37. _____ enables software to train itself to perform tasks with vast amounts of data.
a. Artificial Intelligence
b. Deep Learning
c. Machine Learning
d. None of the above
Ans. b. Deep Learning

Q38. _____ is part of Artificial Intelligence.
a. Machine Learning
b. Deep Learning
c. Both of the above
d. None of the above
Ans. c. Both of the above

Q39. Which of the following is not correct about AI?
a. AI is making people's lives easier.
b. AI is advancing and improving the lives of people by working for them and doing some of their tasks.
c. AI may increase unemployment in coming years.
d. None of the above
Ans. d. None of the above

Q40. During installation _____ app does not collect any data from the user.
a. WhatsApp
b. Telegram
c. Both of the above
d. None of the above
Ans. b. Telegram

Q41. Which of the following mimic human intelligence?
a. AI
b. MMT
c. DL
d. ML
Ans. a. AI

Q42. Which of the following is a domain of AI?
a. Data Science
b. Computer Vision
c. Natural Language Processing
d. All of the above

Ans. d. All of the above

Q43. Which of the following is correct about Data Science?
a. It is a domain of AI
b. It is related to data systems and processes.
c. In this, system collects numerous data, maintains data sets and derives meaning out of them.
d. All of the above
Ans. d. All of the above

Q44. Which of the following are examples of price comparing website?
a. Blogger, Pricecompare
b. PriceGrabber, PriceRunner
c. Compare, Junglee
d. Shopzilla, funzilla
Ans. b. PriceGrabber, PriceRunner

Q45. _____ domain of AI that depicts the capability of a machine to get and analyse visual information
a. AI
b. Computer Vision
c. Data Science
d. Natural Language Processing
Ans. b. Computer Vision

Q46. In computer vision (domain of AI), _____ can be Input to machines.
a. Photographs
b. Videos
c. Pictures
d. All of the above
Ans.d. All of the above

Q47. Which of the following is an example of Computer Vision?
a. Self-Driving cars
b. Automatic Cars
c. Face Lock in Smartphones
d. All of the above
Ans. d. All of the above

Q48. Smart phone face lock mechanism comes under _____ domain of AI.
a. Data Science
b. Computer Vision
c. Natural Processing Language
d. All of the above
Ans. b. Computer Vision

Q49. Which domain of artificial intelligence deals with the interaction between computers and humans using the natural language?
a. Computer Vision
b. Data Science
c. NLP
d. None of the above
Ans. c. NLP

Q50. Email filter is an example of _____
a. Computer Vision
b. Data Science
c. NLP
d. None of the above
Ans. c. NLP

Q51. Which domain of AI works in spam filter?
a. NLP
b. CV
c. Data Science
d. None of the above
Ans. a. NLP

Q52. Which domain of AI scan live objects and analyse them?
a. NLP
b. CV
c. Data Science
d. None of the above
Ans. b. CV

Q53. The main objective of _____ domain of AI is to teach machines to collect information from pixels.
a. NLP
b. CV
c. Data Science
d. None of the above
Ans. b. CV

Q54. _____ related projects translate digital visual data into descriptions.
a. Natural Language Processing
b. Computer vision
c. Data Science
d. None of the above
Ans. b. Computer vision

Q55. Amazon's Alexa is a _____
a. Smart Mobile
b. Smart Assistant
c. Smart Tablet
d. Smart View
Ans. b. Smart Assistant

Q56. Which of the following is not a smart assistant?
a. Apple's Siri
b. Amazon's Alexa
c. Microsoft Cortana
d. IBM Goldy
Ans. d. IBM Goldy

Q57. What we can do with the help of Smart Phone?
a. Online Shopping
b. Online ticket booking

c. Online food order
d. All of the above
Ans. All of the above

Q58. The world of Artificial Intelligence depends upon _____
a. Data
b. Smart Phone
c. Smart Car
d. Value
Ans. a. Data

Q59. Now a days, we are saying data is a new _____
a. Gold
b. Technology
c. Device
d. Generation
Ans. a. Gold

Q60. Major source of data for many major companies is _____
a. Smartphone
b. Keyboard
c. Scanner
d. Speaker
Ans. a. Smartphone

Q61. Whenever you download an app and install, it asks you for several permissions to access your phone's data in different ways. So the data which is collected by applications is _____
a. ethical
b. unethical
c. illegal
d. weak
Ans. a. ethical

Q62. An alternative to WhatsApp is the _____ app
a. Telegram
b. Play store
c. BGMI
d. UPI
Ans. a. Telegram

Q63. Artificial is something which is man-made.(T/F)
a. True
b. False
An. a. True

Q64. Humans are said to be an intelligent species.(T/F)
a. True
b. False
Ans. a. True

Q65. All the Smart devices are AI-enabled.(T/F)
a. True

b. False
Ans. b. False

Q66. Machine Learning is a subset of Artificial Intelligence.(T/F)
a. True
b. False
Ans. a. True

Q67. Deep Learning is the most advanced form of Artificial Intelligence.(T/F)
a. True
b. False
Ans. a. True

Q68. Now a days mobile phones are more smart than the phones we had in last century.(T/F)
a. True
b. False
Ans. a. True

Q69. A kitchen chimney with motion sensor and touch button is an example of AI. (T/F)
a. True
b. False
Ans. b. False

Q70. All the devices which are termed as "smart" are AI-enabled. (T/F)
a. True
b. False
Ans. b. False

OBJECTIVE QUESTIONS (SET 02)

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)

True/False:
1. A machine is artificially intelligent when it can accomplish tasks by itself. (True)
2. Is a smart washing machine an example of an Artificially Intelligent devices? (False)
3. Platforms like Netflix, Amazon, Spotify, YouTube etc. show us recommendations on the basis of what we like. (True)

Fill in the blanks:
1. One of the major sources of data for many major companies is the device which all of us have in our hands all the time_____ (Smartphone/ Mobile Phones)
2. The world of Artificial Intelligence revolves around _____ (Data)

True/False:
3. All the apps collect some kind of data. (True)

1. What do you understand by linguistic Intelligence?
Linguistic intelligence means intelligence to understand and interpret human natural language and try to extract meaning out of it.

<div align="center">OR</div>

Linguistic Intelligence refers to the ability of an individual to understand both written and spoken language and the additional ability to write and speak the language too.

<div align="center">OR</div>

This is the intelligence of language and communication. It includes the ability to speak, articulate, and express, and convey one's thoughts and feelings to the outside world in one or more languages. This can be at an oral and written level. It also includes the ability to listen to and to understand other people.

2. What do you understand by Interpersonal Intelligence?
Understanding human emotions, feelings and influenced by them is known as interpersonal intelligence.

<div align="center">OR</div>

Interpersonal intelligence is the ability to communicate with others by understanding other people's feelings, being influenced by the person.

<div align="center">OR</div>

Interpersonal intelligence refers to the ability of a person to relate well with people and manage relationships. It enables people to understand the needs and motivations of those around them, which helps strengthen their overall influence.

<div align="center">OR</div>

*Inter*personal intelligence refers to the ability to understand social situations and the behavior of other people.

3. 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.

<div align="center">OR</div>

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.

<div align="center">OR</div>

Artificial Intelligence is a way of making a computer, a computer-controlled robot, or a software think intelligently, in a similar manner to how intelligent humans think.

<div align="center">OR</div>

AI is a form of intelligence; a type of technology and a field of study. AI theory and development of computer systems (both machines and software) are able to perform tasks that normally require human intelligence.

<div align="center">OR</div>

Artificial Intelligence works to implement human intelligence in machines: creating systems that understand, think, learn, and behave like humans.

<div align="center">OR</div>

Artificial Intelligence or AI for short, refers to any technique that enables computers to mimic human intelligence. An artificially intelligent machine works on algorithms and data fed to it and gives the desired output.

4. Mention two types of machines which have evolved with time.
Television/Mobile Phones/ Ceiling Fans/ Microwave ovens/ Headphones / Speakers/ Harvesters/ Refrigerators/Air Conditioners etc.
(1 mark for any two right answers)

5. What do you understand by mathematical and logical reasoning?
A person's ability to regulate, measure, and understand numerical symbols, abstraction and logic.

OR

Reasoning is based on previous established facts. To establish a new fact or truth one has to put it to the test of reasoning. If the new fact coincides with the previously established facts, it is called logical or rational. It is the ability of a person to regulate, measure and understand numerical symbols, abstraction and logic.

6. What do you understand by Machine Learning?
Machine Learning is a subset of Artificial Intelligence which enables machines to improve at tasks with experience (data). The intention of Machine Learning is to enable machines to learn by themselves using the provided data and make accurate Predictions/ Decisions.

OR

Machine learning focuses on the development of computer programs that can access data and use it to learn for themselves.

OR

Machine learning is a data analytics technique that teaches computers to do what comes naturally to humans and animals: learn from experience.

7. What do you understand by Deep Learning?
Deep Learning is the most advanced form of Artificial Intelligence. In Deep Learning, the machine is trained with huge amounts of data which helps it in training itself around the data. Such machines are intelligent enough to develop algorithms for themselves.

OR

Deep learning is an artificial intelligence (AI) function that imitates the workings of the human brain in processing data and creating patterns for use in decision making.

OR

Deep learning is a subset of machine learning where artificial neural networks, algorithms inspired by the human brain, learn from large amounts of data.

8. What are the three domains of AI?
● Data Science/ Big Data
● Computer Vision
● Natural Language Processing (NLP)

9. Name any two examples of Data science?
(Any two out of the following)
Price Comparison Websites/ Website Recommendations/ Fraud and Risk detection/ Internet search/ Personalized healthcare recommendations / Optimizing Traffic routes in real-time / image tagging.

10. Name any two examples of Computer vision?
(Any two out of the following)
Self-Driving cars/ Autonomous vehicles Face Lock in Smartphones/ MedicalImaging/ Facial recognition /Security Systems / Waste Management / Satellite imaging.

11. Name any two examples of Natural Language Processing?
(Any two out of the following)
Email filters/Smart assistants/ Sentiment Analysis/Automatic Summarization/Search results / Language translation / Digital phone calls.

12. Name any two examples of Machine Learning?
(Any two out of the following)

Virtual Personal Assistants, Recommendation systems like Netflix, Face Apps, Online Fraud Detection

13. Snapchat filters use _____ and _____ to enhance your selfie with flowers, cat ears etc.
a) machine learning and deep learning
b) data and image processing
c) augmented reality and machine learning
d) NLP and computer vision
Ans: **c) augmented reality and machine learning**

14. Based on the image below, choose the correct domain or domains of AI required for it:

a) Data
b) NLP
c) Computer Vision
d) Both (a) and (b)
Ans: d) **Both (a) and (b)**

15. Rock paper and scissors game is based on the following domain:
a) Data for AI
b) Natural Language Processing
c) Computer Vision
d) Image processing
Ans: a) **Data for AI**

16. Select a game which is based on Data Science domain of AI:
a) Rock Paper and Scissors b) Mystery Animal
c) Emoji Scavenger Hunt d) Pokémon
Ans: a) **Rock Paper and Scissors**

17. Identify the domain of AI in the following image:

a) Data Science
b) Natural Language Processing

c) Computer Vision
d) Rule Based
Ans: **c) Computer Vision**

1. Mention four examples of artificially intelligent applications in our smartphones.
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)

2. 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.
<div align="center">OR</div>
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.

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

4. **How does learning and adapting help an AI machine in improvising itself?**
An artificially intelligent machine collects real time data and tries to figure out new patterns in it. Machines learn in a similar way human being; by supervision or by observation and respond according to past experiences in similar scenarios. A machine learns from its mistakes. The more the machine gets trained on data, the more accurate result it gives.
For example:
Any virtual assistant initially trained with few basic instructions, but with time, the machine captures the data fed by the user, may be the wake-up time of the user, sleeping time, dinner time and so on. Later in time, the machine gives reminders of similar things on the basis of data and adapts these new commands.
<div align="center">OR</div>
Just as humans learn how to walk and then improve this skill with the help of their experiences, an AI machine too gets trained first on the training data and then optimizes itself according to its own experiences which makes AI different from any other technological device/machine.

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
Ans: Chatbot (1 marks), as it is NLP based, the other three are Computer vision based (1marks for justification).

6. 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.

7. How has AI changed the gaming world?
AI has changed the world of gaming by making the game more intelligent by providing them the ability to learn using machine learning algorithms. Games these days try to understand human patterns and give responses on the basis of it and also give new difficulty levels.
<div align="center">OR</div>

AI has changed the gaming world in terms of feel and emotions. Some video games react to player skill level. Depending on how well you do, adaptive AI ratchets the game's difficulty level up and down to give you a greater challenge when you need it or to prevent you from rage-quitting in frustration. AI can also adapt to your playing style by making the game more exciting.

8. Why training with information/Data is important in Artificial Intelligent devices?
Similar to human beings, AI devices need experience to give better results and improve in every next iteration. For giving better results, the machine should be trained with some real data. The more the amount of accurate data, the better predictions will be made by the machine. Hence, data is very important in AI devices.
<div align="center">OR</div>

The AI devices need to be trained with information / Big data to produce the best possible accurate results. All of AI's learning happens only through this data. So, it makes sense to have as big a dataset as is required to include variety, subtlety, and nuance that makes the model viable for practical use. Before training, the model is just a theorist.

9. What is Data science? Give an example of it.
Data sciences is a domain of AI related to data systems and processes, in which the system collects numerous data, maintains data sets and derives meaning/sense out of them. The information extracted through data science can be used to make a decision about it.
<div align="center">OR</div>

Data science is the field of study that combines domain expertise, programming skills, and knowledge of mathematics and statistics to extract meaningful insights from data.
<div align="center">OR</div>

Data Sciences, it is a concept to unify statistics, data analysis, machine learning and their related methods in order to understand and analyses actual phenomena with data.
For example: a company that has petabytes of user data may use data science to develop effective ways to store, manage, and analyze the data.

10. What is Computer Vision? Give an example of it.
Computer Vision, abbreviated as CV, is a domain of AI that depicts the capability of a machine to get and analyze visual information and afterwards predict some decisions about it. The entire process involves image acquiring, screening, analyzing, identifying and extracting information.
<div align="center">OR</div>

Computer vision is an interdisciplinary field that deals with how computers can be made to gain high-level understanding from digital images or videos.
<div align="center">OR</div>

The Computer Vision domain of Artificial Intelligence, enables machines to see through images or visual data, process and analyze them on the basis of algorithms and methods in order to analyze actual phenomena with images.

For Example: - Self-Driving cars/ Automatic Cars, Face Lock in Smartphones

11. What is Natural Language Processing? Give an example of it.

Natural Language Processing, abbreviated as NLP, is a branch of artificial intelligence that deals with the interaction between machine/computers and humans using the natural language. *Natural language* refers to language that is spoken and written by people, and natural language processing (NLP) attempts to extract information from the spoken and written word using algorithms.

<p align="center">OR</p>

Natural Language Processing, or NLP, is the sub-field of AI that is focused on enabling machine/computers to understand and process human languages. AI is a subfield of Linguistics, Computer Science, Information Engineering, and Artificial Intelligence concerned with the interactions between computers and human (natural) languages, in particular how to program computers to process and analyze large amounts of natural language data.

<p align="center">OR</p>

In NLP, we teach machines how to understand and communicate in human language. Natural language refers to speech analysis in both audible speeches, as well as text of a language. NLP systems capture meaning from an input of words (sentences, paragraphs, pages, etc.)

For Example: Email filters, Smart assistants: - Apple's Siri and Amazon's Alexa

12. Where do we collect data from?

Data can be collected from various sources like –

➢ Surveys
➢ Sensors
➢ Observations
➢ Web scrapping (Internet)
➢ Interviews
➢ Documents and records.
➢ Oral histories

13. Why do we need to collect data?

Data to a machine is similar to food for human being to function. The world of Artificial Intelligence revolves around Data. Every company whether small or big is collecting data from as many sources as possible. Data is called the New Gold today. It is through data collection that a business or management has the quality information they need to make informed decisions from further analysis, study, and research. Data collection allows them to stay on top of trends, provide answers to problems, and analyze new insights to great effect.

14. What is data mining? Explain with example.

Data mining is the process of analyzing large data sets and extracting the useful information from it. Data mining is used by companies to turn raw data into useful information. It is an interdisciplinary subfield of computer science and statistics with an overall goal to extract information

<p align="center">OR</p>

Data mining is an automatic or semi-automatic technical process that analyses large amounts of scattered information to make sense of it and turn it into knowledge. It looks for anomalies, patterns or correlations among millions of records to predict results, as indicated by the SAS institute, a world leader in business analytics.

Example:

Price Comparison websites- They collect data about a product from different sites and then analyze trends out of it and show up the most appropriate results.

Data mining is also known as Knowledge Discovery in Data (KDD)

To be moved to chapter no. 3

15. What do you understand by Data Privacy?

The world of Artificial Intelligence revolves around Data. Proper and ethical handling of own data or user data is called data privacy. It is all about the rights of individuals with respect to their personal information.

Data privacy or information privacy is a branch of data security concerned with the proper handling of data – consent, notice, and regulatory obligations. More specifically, practical data privacy concerns often revolve around: Whether or how data is shared with third parties

16. Is data which is collected by various applications ethical in nature? Justify your

Yes, most of the times, the data collected by various applications is ethical in nature as the users agree to it by clicking on allow when the application asks for various permissions. They ask for our data for various facilities like - to show us personalized recommendations and advertisements and to make their app more accurate and efficient.

<div align="center">OR</div>

No, the data collected by various applications is not always ethical in nature. Sometimes, we just share our data to non – trusted third party applications without reading what happens to our data. This may lead to unethical use of our data. If one does not want to share his/her data with anyone, he/she can opt for alternative applications which are of similar usage and keep the data private. For example, an alternative to WhatsApp is the Telegram app which does not collect any data from us.

Note: This is an open-ended question, so both the answers yes/no will be considered right with correct justification.

<div align="center">

QUESTIONS AND ANSWERS (SET 01) - 3/4 marks

</div>

1. 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.'*

<div align="center">OR</div>

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.

<div align="center">OR</div>

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.

2. 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.

While we see a lot of AI applications around us, there still exist a lot of them which are smart but not intelligent.

An AI enabled machine should not only recognize, but should also do something with its gathered information. Artificial intelligence" must mean a human-made interface with the power to reason and integrate knowledge. AI must demonstrate at least some of the following behaviors associated with human intelligence: planning, learning, reasoning, problem solving, knowledge representation, perception, motion, manipulation and, to a lesser extent, social intelligence, and creativity.

Most IOT items are ordinary things outfitted with sensors and connected to the Internet. For example, sensors in your office can recognize shadows or movements, but that doesn't make them an example of artificial intelligence. A fully automatic washing machine can work on its own, but it requires human intervention to select the parameters of washing and to do the necessary preparation for it to function correctly before each wash, which makes it an example of automation, not AI.

3. How can AI be integrated with non-AI technologies? Explain with the help of an example.
Today's world is changing with the adoption of IOT (Internet of Things). IOT is helping in prominently capturing a tremendous amount of data from multiple sources. The convergence of AI (Artificial Intelligence) and IOT can redefine the way industries, business, and economies function. AI enabled IoT creates intelligent machines that simulate smart behavior and supports decision making with little or no human interference.

While IOT provides data, artificial intelligence acquires the power to unlock responses, offering both creativity and context to drive smart actions. Here are some examples:

- Ex. 1: Self-driving Cars: Tesla's self-driving cars are the best example of IoT and AI working together. With the power of AI, self-driving cars predict the behavior of pedestrians and cards in various circumstances. For example, they can determine road conditions, optimal speed, weather and getting smarter with each trip.
- Ex. 2: Robots in Manufacturing: Manufacturing is one of the industries that already embraced new technologies like IoT, artificial intelligence, facial recognition, deep learning, Robots and many more. Robots employed in factories are turning smarter with the support of implanted sensors, which facilitates data transmission. Moreover, as the robots are provisioned with artificial intelligence algorithms, they can learn from newer data. This approach not only

saves time and cost but also makes the manufacturing process better over time.

- Ex.3: Weather forecasting System: In a weather forecasting system, where IOT temperature sensor and humidity sensors collect data from the physical world, AI tries to figure out patterns from previous data collected and tries to interpret and give accurate predictions of upcoming day weather.
- Ex.4: Smart Drones: Initially drones were only able to capture photographs, these were not AI drones. As the scientist used to analyze the data captured through drones. Now the drones are incorporated with AI, which helps them to make decisions also on the basis of the picture they capture.

*Any one example from above or any other matching example can be given

4. Read the given scenario and answer the questions that follow:

A farmer keeps rabbits in three large hutches that stand in a row in his backyard. Each of the hutches is painted different colours – red, yellow and green. Until recently, the number of rabbits in the green hutch was twice as large as the number of rabbits in the yellow hutch. Then, one day, the farmer took five rabbits out of the left-side hutch and gave them away to the local school's pet corner. He also took half of the rabbits that remained in the left-side hutch and moved them to the red hutch.

a. What was the colour of the left-side hutch? Justify your answer with explanation.

The answer is yellow.

Explanation: As we already know at the outset the number of rabbits in the green hutch was twice as large as the number of rabbits in the yellow hutch. This means that the number of rabbits in the green hutch was an even number. After the farmer removed five rabbits from the left side hutch, then the number of rabbits that remained there also became an even number. This is proven by the fact that it was divisible by 2. Therefore, before those five were removed, the left side hutch contained an uneven number of rabbits hence the left side hutch cannot be the green one, but based on the given information, it cannot be the red one. Hence it is yellow.

5. A scenario is given to you below. Read it and answer the questions that follow:

Late one night, a car ran over a pedestrian in a narrow by street and drove away without stopping. A policeman who saw the vehicle leave the scene of the accident reported it moving at very high speed. The accident itself was witnessed by six bystanders. They provided the following conflicting accounts of what had happened:

- It was a blue car driven by a man;
- The car was moving at high speed and its headlights were turned off;
- The car did have license plates; it wasn't going very fast;
- It was a Toyota and its headlights were turned off;
- The car didn't have license plates; the driver was a woman;
- It was a grey Ford.

When the car and its driver were finally apprehended, it turned out that only one of the six eyewitnesses gave a fully correct description. Each of the other five provided one true and one false piece of information. Keeping that in mind, can you determine the following:

a. What was the car's brand? Ans: FORD
b. What was the colour of the car? Ans: BLUE
c. Was the car going fast or slow? Ans: FAST
d. Did it have license plates? Ans: NO
e. Were its headlights turned on? Ans: NO
f. Was the driver a man or a woman? Ans: WOMAN

Explanation: Out of the statements of 6 bystanders, the third statement becomes false as the policeman who saw the vehicle leave the scene of the accident reported it moving at very high speed. Then eliminating all false statements of bystanders, the above results can be extracted.

6. *A firefighter has to get to a burning building as quickly as he can. There are three paths that he can take. He can take his fire engine over a large hill (5 miles) at 8 miles per hour. He can take his fire engine through a windy road (7 miles) at 9 miles per hour. Or he can drive his fire engine along a dirt road which is 8 miles at 12 miles per hour.* **Which way should he choose? (speed=distance/time)**

To reach the destination quickly, the fire fighter has to calculate the time required on the basis of given data. Driving his fire engine 5 miles at 8 miles per hour takes 37.5 minutes. Driving his fire engine 7 miles at 9 miles per hour takes about 47 minutes. Driving his fire engine 8 miles at 12 miles per hour takes 40 minutes So he should choose to drive his fire engine over the hill.)

7. *A thief has just found a pair of ancient treasure caves. One of the caves is filled with unbelievable treasure and the other has a fire breathing monster that will eat anyone who opens that cave. One cave has a black door decorated with diamonds and the other cave has a brown door decorated with sapphires. Each of the doors has an engraved description on top. The descriptions say:*
a. Black Door: Monster is here.
b. Brown Door: Only One Door speaks the truth.
Which door should the thief open?
The treasure is in the Black door.
Explanation: Let us look at the description on the Brown door. It can be correct or wrong.
Scenario 1: The description on the Brown door is true. Then the description on the Black door has to be false. That means that the inscription on the Black door is false and the cave with black door contains the treasure!
Scenario 2: The description on the Brown door is false. Then either both the descriptions are false or both are true. Both cannot be true as that is impossible and not consistent. That means that both descriptions are false.

8. *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.

9. *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.

10. What do you understand by AI bias? Discuss in detail with some examples.

AI bias is the underlying prejudice in data that's used to create AI algorithms, which can ultimately result in discrimination and other social consequences.

AI Bias can creep into algorithms in several ways. AI systems learn to make decisions based on training data, which can include biased human decisions or reflect historical or social inequities, even if sensitive variables such as gender, race, or sexual orientation are removed. Amazon stopped using a hiring algorithm after finding it favored applicants based on words like "executed" or "captured" that were more commonly found on men's resumes, for example. Another source of bias is flawed data sampling, in which groups are over- or underrepresented in the training data.

For Example
- Majorly, all the virtual assistants have a female voice. It is only now that some companies have understood this bias and have started giving options for male voices but since the virtual assistants came into practice, female voices are always preferred for them over any other voice. Can you think of some reasons for this?
- If you search on Google for salons, the first few searches are mostly for female salons. This is based on the assumption that if a person is searching for a salon, in all probability it would be a female. Do you think this is a bias? If yes, then is it a Negative bias or Positive one?

11. What do you understand by Data Privacy? Discuss in detail with some examples.

Data privacy, sometimes also referred to as information privacy, is an area of data protection that concerns the proper handling of sensitive data including, notably, personal data but also other confidential data, such as certain financial data and intellectual property data, to meet regulatory requirements as well as protecting the confidentiality and immutability of the data. It focuses on how to collect, process, share, archive, and delete the data in accordance with the law.

Privacy, in the broadest sense, is the right of individuals, groups, or organizations to control who can access, observe, or use something they own, such as their bodies, property, ideas, data, or information.

Control is established through physical, social, or informational boundaries that help prevent unwanted access, observation, or use. For example:
- A physical boundary, such as a locked front door, helps prevent others from entering a building without explicit permission in the form of a key to unlock the door or a person inside opening the door.
- A social boundary, such as a members-only club, only allows members to access and use club resources.
- An informational boundary, such as a non-disclosure agreement, restricts what information can be disclosed to others.

Privacy of information is extremely important in this digital age where everything is interconnected and can be accessed and used easily. The possibilities of our private information being extremely vulnerable are very real, which is why we require data privacy.

12. What do you understand by AI, ML & DL? How are they different from each other?
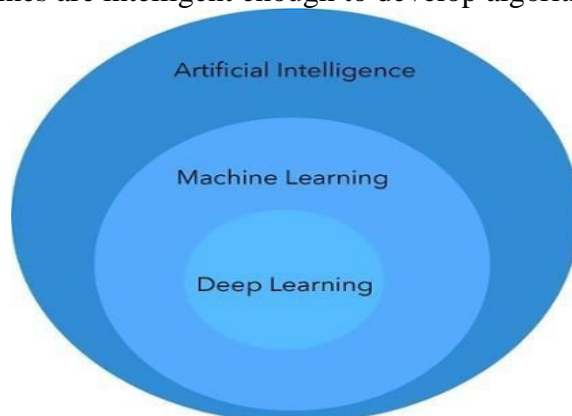
a) Artificial Intelligence (AI)
AI is incorporating human intelligence to machines. Whenever a machine completes tasks based on a set of rules that solve problems (algorithms), such an "intelligent" behavior is what is called artificial intelligence.

b) Machine Learning (ML)

ML is a subset of AI that uses statistical learning algorithms to build smart systems. The ML systems can automatically learn and improve without explicitly being programmed.

c) Deep Learning (DL)

In Deep Learning, the machine is trained with huge amounts of data which helps it in training itself around the data. Such machines are intelligent enough to develop algorithms for themselves.

How they differ?

➢ Deep Learning is the most advanced form of Artificial Intelligence out of these three. Then comes Machine Learning which is intermediately intelligent and Artificial intelligence covers all the concepts and algorithms which, in some way or the other mimic human intelligence.

➢ Therefore, AI is the umbrella term which covers ML and DL.

13. Why do apps collect data in our phone?

One of the major sources of data for many major companies is the device which all of us have in our hands all the time: Smartphones. Smartphones have nowadays become an integral part of our lives. Most of us use smartphones more than we interact with people around us.

For the facilities that smartphones provide us, Apps need a lot of data which is collected from the user like details about your face, browsing history, or your geographic location, contact list etc. This data is collected with user's consent which he/she gives at the time of installing an app by clicking on "yes" or "allow" options which clearly means that we ourselves are giving permissions to the Apps. Permissions by themselves are harmless and even useful to provide users a good mobile experience. This data is collected to provide us with a lot of facilities and features which have made our lives easier. Another reason to collect the data is to provide us with customized recommendations and notifications according to our choices.

One more reason to collect the data is to make their app more accurate and efficient.

14. Should AI replace laborious jobs? Is there an alternative for major unemployment?

Yes, AI should replace laborious jobs.

● AI can replace laborious jobs like lifting of heavy items, working in mines etc.

● AI can indeed automate most repetitive and physical tasks.

● In future, AI would be a good option in the field of architecture and construction.

OR

No, AI should not replace laborious jobs completely as if it replaces laborious jobs completely, then there will be no source of income for the daily wage workers due to unemployment. So, industry owners can use some machines but more of man power. Hence the production will not get affected as humans are smarter than machines since they were the ones who invented AI.

Note: As this is an open-ended question so both the answers (yes/No) are correct but it must be with correct justification.

Is there an alternative for major unemployment?

● AI taking over laborious jobs won't create unemployment. It is just a groundless fear. The standard view of technical change is that some jobs are displaced by the substitution of machines for labour, but that the fear of total displacement is misplaced because new jobs are created, largely due to the

technology-fuelled increase in productivity. Humans have always shifted away from work suitable for machines and to other jobs.

● The basic fact is that technology eliminates jobs, not work. If this level of AI revolution will happen, lots of job opportunities will be created. For example: 20-30 years ago, being an accountant was a lucrative job, but AI took over this job but this created a lot of opportunities, it raised the demand of a software engineer, data scientist, etc.

● It will open doors to skillful jobs rather than doing laborious tasks.

● Thus, we will be able to cope with the level of major unemployment, if AI took over laborious jobs.

15. As Artificially Intelligent machines become more and more powerful, their ability to accomplish tedious tasks is becoming better. Hence, it is now that AI machines have started replacing humans in factories. While people see it in a negative way and say AI has the power to bring mass unemployment and one day, machines would enslave humans, on the other hand, other people say that machines are meant to ease our lives. If machines over take monotonous and tedious tasks, humans should upgrade their skills to remain their masters always.

What according to you is a better approach towards this ethical concern? Justify your answer.

● AI taking over laborious jobs won't create unemployment. It is just a groundless fear. The standard view of technical change is that some jobs are displaced by the substitution of machines for labour, but that the fear of total displacement is misplaced because new jobs are created, largely due to the technology-fuelled increase in productivity. Humans have always shifted away from work suitable for machines and to other jobs.

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● Thus, we will be able to cope with the level of major unemployment, if AI took over laborious jobs.

16. List down various sensors that are present in a smartphone. Also list down the type of data which gets collected through them.
- ACCELEROMETER [helps running AR applications and track steps]
- GPS [Location Data]
- Gyroscope [Orientation Data]
- Magnetometer [Direction and Magnetic Field Data]
- Biometric Sensors [Fingerprint ,Iris, Face data]

(Case Study) AI and robotics have raised some questions regarding liability. Take for example the scenario of an 'autonomous' or AI-driven robot moving through a factory. Another robot surprisingly crosses its way and our robot draws aside to prevent collision. However, by this manoeuvre the robot injures a person.
a) Who can be held liable for damages caused by autonomous systems?

It is actually very difficult to blame anyone in such a scenario. Here is the situation where AI Ethics come in to the picture. Here, the choices might differ from person to person and one must understand that nobody is wrong in this case. Every person has a different perspective and hence he/she takes decisions according to their moralities.

But still if someone is to be liable then it should be the programmer who has designed the algorithm of the autonomous vehicle as he/she should have considered all the exceptional conditions that could arise.

b) List two AI Ethics.
(Any two out of the following)
AI Bias, AI Access, Data privacy, AI for kids.

1. What is Intelligence?
Answer – Machines that can simplify human life have been created by humans. Machines are designed to complete jobs that are either time-consuming or too laborious for people to complete. Therefore, machines assist us by performing tasks for us, dividing our workload, and making it simpler for us to achieve these objectives.

2. What is Artificial Intelligence?
Answer – The replication of human intelligence functions by machines, particularly computer systems, is known as artificial intelligence. Expert systems, natural language processing, speech recognition, and machine vision are some examples of specific AI applications.

3. What are the different abilities that are involved in Intelligence?
Answer – The abilities that are involved in Intelligence are –
a. Musical Intelligence
b. Mathematical Logic Intelligence
c. Linguistic Intelligence
d. Spatial Visual Intelligence
e. Kinaesthetic Intelligence
f. Existential Intelligence
g. Intrapersonal Intelligence
h. Interpersonal Intelligence
i. Naturalist Intelligence

4. How do you make decisions?
Answer – The basis for decision-making depends on the information that is available and how we perceive and comprehend it. Without information, we are unable to make "excellent" decisions because we are forced to deal with unknown variables and encounter uncertainty, which forces us to make irrational assumptions, flip coins, or roll dice. Knowing something about a situation, having experience with it, or having insights into it let us imagine possible outcomes. and how we might accomplish or prevent those results.

5. What are the different Applications of Artificial Intelligence?
Answer – Real-time language translators, weather predictions, the first humanoid robot clever enough to obtain citizenship, and biometric security systems like the face locks on our phones! This all are AI Application.
<u>Let see some of the important AI application –</u>
a. Google – We use Google to search the internet without realizing how effectively it always provides us with precise responses. It not only quickly returns the results of our search, but it also advises and corrects the grammar of our written words.
b. Hey Siri – These days, we have personal assistants that respond to a single command and perform numerous tasks. Several popular voice assistants that are an integral component of our digital devices are Alexa, Google Assistant, Cortana, and Siri.
c. FIFA Sports – AI has significantly improved the gaming experience. Many modern video games are supported by artificial intelligence (AI), which improves graphics, creates new challenges for players, etc.

d. Amazon – AI has taken care of our habits, likes, and dislikes in addition to making our lives easier. Because of this, services like Netflix, Amazon, Spotify, and YouTube, among others, display recommendations based on our preferences.

e. Social Media – The recommendations, however, go beyond simply reflecting our preferences; they also take into account our desire to interact with friends via social media networks like Facebook and Instagram. Additionally, they provide us personalized notifications about our online buying information, construct playlists automatically based on our demands, and more.

f. Chatbot – Our health is also being tracked by AI. There are many chatbots and other health apps available that continuously track their users' physical and emotional wellbeing.

6. What is Machine Learning?
Answer – It is a branch of artificial intelligence that allows robots to get better at tasks over time (data). The goal of machine learning is to give computers the ability to learn on their own utilizing the supplied data and arrive at reliable predictions and decisions.

7. What is Deep Learning?
Answer – Software can use it to teach itself how to carry out tasks using enormous volumes of data. Massive volumes of data are used to train the machine in deep learning, allowing it to learn from the data. These devices possess the intelligence to create algorithms on their own.

The most sophisticated type of artificial intelligence among these three is deep learning. The next stage is intermediately intelligent machine learning, and artificial intelligence encompasses all ideas and techniques that, in some way or another, approximate human intelligence.

8. What is AI Domain?
Answer – The training an artificial intelligence receives determines how intelligent it becomes. Datasets are fed into the computer during training. The data given into the AI algorithm varies depending on the applications for which it is designed. AI models can be roughly divided into three categories based on the type of data they are fed, including:
a. Data Science
b. Computer Vision
c. Natural Language Processing

9. What is the purpose of Data Science in AI?
Answer – Data sciences is an area of AI that deals with data systems and processes. In this area, a system gathers a lot of data, maintains data sets, and extrapolates meaning from the data.

The information extracted through data science can be used to make a decision about it.
Example of Data Science – Price Comparison Websites

10. What is Computer Vision?
Answer – The field of artificial intelligence known as CV describes a machine's capacity to gather and analyse visual data before making predictions about it. Image acquisition, screening, analysis, identification, and information extraction are all part of the process. Computers can comprehend any visual content and respond appropriately thanks to this thorough processing.
Example of Computer Vision – Self-Driving cars/ Automatic Cars / Face Lock in Smartphones

11. What is the purpose of NLP?
Answer – "Natural Language Processing," or NLP, is concerned with how computers and people interact while utilizing natural language. Natural language processing (NLP), which aims to extract information from spoken and written words using algorithms, refers to language that is spoken and written by people.
Example of NLP – Email filters / Smart assistants

12. What is AI Ethics?

Answer – AI ethics is a set of moral guidelines and methods meant to guide the creation and ethical application of artificial intelligence technologies. Organizations are beginning to create AI codes of ethics as AI has become ingrained in goods and services.

13. What is Data Privacy in AI?
Answer – Data privacy is the ability to manage how our digital data is collected, used, and shared by various parties. Artificial intelligence is becoming more and more embedded into every part of our life as technology improves.

Data is the center of the artificial intelligence universe. Every business, no matter how big or little, is collecting data from as many sources as they can. The fact that more than 70% of the data acquired to date was just gathered in the previous three years demonstrates how crucial data has grown in recent years.

14. What is a AI Bias?
Answer – A occurrence known as machine learning bias, also known as algorithm bias or AI bias, is when an algorithm generates results that are systematically biassed as a result of false assumptions made during the machine learning process.

15. Why do we need Artificial Intelligence?
Answer – Artificial intelligence aims to build machines that are intelligent and can behave like people. In the modern world, AI is required to solve complicated problems, improve our daily lives by automating mundane operations, save labor, and carry out a wide range of other duties.

16. What is Deep Learning, and how is it used in real-world?
Answer – A subtype of machine learning called "deep learning" imitates how the human brain functions. It is modelled after the neurons found in the human brain and uses neural networks to tackle challenging real-world issues. Deep neural learning or the deep neural network are other names for it.
Deep learning has some practical applications, including:
a. Adding color to the black-and-white pictures
b. visual computing
c. text production
d. Robots with deep learning, etc.

17. Which programming language is used for AI?
Answer – The top five programming languages used most frequently for creating artificial intelligence are listed below:
a. Python
b. Java
c. Lisp
d. R
e. Prolog

18. What is the intelligent agent in AI, and where are they used?
Answer – Any autonomous entity that uses sensors to detect its surroundings and actuators to act on it might be considered an intelligent agent.
The following applications of AI make use of these intelligent agents:
a. Information Access and Navigations such as Search Engine
b. Repetitive Activities
c. Domain Experts
d. Chatbots, etc.

19. How is machine learning related to AI?

Answer – A subfield or subset of artificial intelligence is machine learning. It is a method of obtaining AI. Since these are distinct ideas, the relationship between them might be stated as "AI uses many machine learning concepts and techniques to solve complicated issues."

20. What is the use of computer vision in AI?
Answer – Computers may be taught to understand and extract data from the visual environment, such as photographs, using an area of artificial intelligence called computer vision. Thus, computer vision makes use of AI technology to resolve challenging issues like image processing and object detection.

21. What are some misconceptions about AI?
Answer – Since the beginning of its development, artificial intelligence has been the subject of many myths. The following list includes a few of these myths:
a. AI does not require humans – The first false assumption regarding artificial intelligence is that it does not require humans. But in truth, every AI-based system still depends on people in some way and will continue to do so. For instance, human data collection is necessary to learn about the data.
b. AI will take your job – One of the major misconceptions is that AI would eliminate most occupations, but in truth, it is opening up more options for people to find new employment.
c. AI is harmful to people – Although strong or super AI, which is intelligent enough to outsmart people, has not yet been developed, AI is nevertheless potentially harmful to people. If it is not used improperly, any strong technology cannot be dangerous.

22. What is a Chatbot?
Answer – A chatbot is a piece of software or an agent with artificial intelligence that uses natural language processing to mimic a conversation with users or people. You can have the chat through a website, application, or messaging app. These chatbots, often known as digital assistants, can communicate with people verbally or via text.

22. What are the different areas where AI has a great impact?
Answer – The areas listed below are ones where AI has a significant impact:
a. Autonomous Transportation
b. Education-system powered by AI.
c. Healthcare
d. Predictive Policing
e. Space Exploration
f. Entertainment, etc.

23. What exactly is machine learning? Include 2 examples of how machine learning is used in everyday life.
Answer – Machine learning is a branch of artificial intelligence that enables machines to get better at tasks over time (data). Making correct predictions and decisions is the goal of machine learning, which aims to give machines the ability to learn on their own using the supplied data.
Snapchat filters and the Netflix recommendation engine both use machine learning.

24. Give the names of any four natural language processing apps that are used in real life situations.
Answer – the four natural language processing apps used in real life are –
a. Automatic Summarization,
b. Sentiment Analysis,
c. Text classification,
d. Virtual Assistants

25. Categorize the following into data sciences, machine learning, computer vision, and NLP.
Our lives are now more convenient thanks to recent technology developments. People who are not

tech adept have benefited greatly from Google Home, Alexa, and Siri. Facelock and facial recognition features have increased the security of our devices. These developments have also helped to make our demands more accessible and practical. These days, you can even use price comparison websites to check costs and chatbots to order groceries online.

Did you know that you can even predict how you will look as you age? This is now feasible thanks to Snapchat filters and Facebook!

Answer –

a. Alexa, Siri-NLP, Facial Recognition – Computer Vision

b. Facelock – Computer Vision

c. Price comparison websites – Data Sciences

d. Chatbots – NLP

e. Facebook -NLP

f. Snapchat Filters – Machine Learning

26. Give some example of NLP applications (Natural Language Processing).

Answer –

a. Automatic Summarization – Automatic summarization is useful for gathering data from social media and other online sources as well as for summarizing the significance of papers and other information.

b. Sentiment Analysis – This technique identifies sentiment in a post, or even within a single post, where emotion is not always conveyed overtly.

c. Text classification – Text categorization allows you to add predetermined categories to a document and organize it to make it easier to find the information you need or to carry out certain tasks.

d. Virtual assistants – Using speech recognition, virtual assistants can understand our speech in addition to recognizing it.