Unit: AI Reflection, Project Cycle and Ethics

Chapter: Understanding AI: Domains and Applications

MCQ

1. Which of the following technologies uses AI to enhance its functionality?
   a. Fitness Tracker   b. Noise-Cancelling Headphones
   c. Virtual Personal Assistant   d. Automatic Door
2. Which of these is an example of AI in healthcare?
   a. Automated Blood Pressure Monitor   b. MRI Machine
   c. Wearable Fitness Tracker   d. Diagnostic Chatbot
3. This technology enables machines to understand and interpret natural language:
   a. Speech Synthesis   b. Natural Language Processing
   c. Optical Character Recognition d. Text Formatting
   Here's a grade 9-level MCQ on the domains of AI:
4. Which of the following is a key domain of artificial intelligence?
   a. Weather Forecasting   b. Computer Vision   c. Video Editing   d. Network Security

Short Answer type

1. Can you name a few apps on your smartphone that heavily rely on artificial intelligence?
2. What do you mean by AI Domains?
3. How does the face lock system work in a smartphone?

Long Answer Type

1. Classify the following technologies based on the AI domains they primarily belong to:
   a. Face recognition in social media
   b. Virtual customer service agents
   c. Self-driving cars
   d. Personalized shopping recommendations
   e. Voice-activated assistants
2. Draw out the difference between the three domains of AI with respect to the types of data they use.

Chapter: The AI Project Cycle- II

MCQ

1. Under _____ stage of AI Project Cycle, we look at various parameters which affect the problem we wish to solve so that the picture becomes clearer.
   a. Modelling   b.Evaluation   c.Problem Scoping   d.Data Exploration
2. The people who face the stated problem and would be benefitted from the solution are termed as
   a.Stakeholders   b.Key Persons   c. Who   d. End user
3. Which of the following statement is correct for training data:

i. Data should be relevant
ii. Data should be authentic
iii. Data should be downloaded only
iv. Data can be anything

   a. i, and ii   b. i, ii and iii   c. ii, iii and iv   d. All of them

4. What is termed as the Problem Statement Template?
   a. The template summaries all the cards of 4Ws Problem Canvas
   b. Data set collected to extract the key elements of a problem
   c. The template provides the prediction of the data set
   d. None of these
5. Which W among 4Ws of Problem Scoping, determines the nature of the problem.
   a. Who   b. What   c. Where   d. Why
6. Which of the following is not an authentic source for data acquisition?
   a. Sensors   b. Surveys   c. Web Scraping   d. System Hacking
7. The combination of structured and unstructured data is known as _____ data.
   a. Structured Data   b.Unstructured Data   c. Semi-Structured   d. Time-Stamped
8. The types of data collected during the AI project cycle is considered as
   a. Data Features   b. Data Attributes   c. Data Collection   d. Data Characteristics
9. Which of the following is one of the government open source for collecting data?
   a. www.ayushmanbharat.org   b. www.india.gov.in
   b. www.bharatdata.in   c. www.india.com
10. Data exploration can be done using _____.
   a. Problem Scoping   b. Data Visualization   c. Data Features   d.Web Scraping
11. Data about the houses such as square footage, number of rooms, features, whether a house has a garden or not, and the prices of these houses, i.e., the corresponding labels are fed into an AI machine. By leveraging data coming from thousands of houses, their features and prices, we can now train the model to predict a new house's price. This is an example of
   a. Reinforcement learning   b. Supervised learning
   c. Unsupervised learning   d. None of the above

12. **Assertion (A):** A self-driving car is made up of a combination of sensors, cameras, radar and AI.
   Reason (R): The owner is liable if a self-driving car is involved in an accident

   a. Both A and R are correct and R is the correct explanation of A.
   b. Both A and R are correct but R is NOT the correct explanation of A
   c. A is correct but R is incorrect
   d. A is incorrect but R is correct

13. **Assertion (A):** System maps tool helps figure out the relationship of elements with the project's goal
   Reason (R): Positive arrows determine a direct relationship of elements while the negative arrows show an inverse relationship of elements.

   a. Both A and R are correct and R is the correct explanation of A.
   b. Both A and R are correct but R is NOT the correct explanation of A
   c. A is correct but R is incorrect
   d. A is incorrect but R is correct

Short Answer type
   1. What do you mean by Data Features?
   2. Differentiate between training and testing data.

3. What are the different types of sources of data from where we can collect reliable and authentic datasets? Explain in brief.
4. Who are the stakeholders?
5. What is the difference between Training Data & Testing Data?

Long Answer Type

1. Explain each stage of AI Project cycle with the help of example.
2. What is the use of Problem Statement template in Problem Scoping?
3. What are the types of data?
4. Draw the 4Ws problem canvas and explain each one of them briefly.
5. Differentiate between rule-based and learning-based AI modelling approaches.
6. Differentiate between classification and clustering algorithms with the help of suitable examples.
7. Do ethics in AI hamper data acquisition stage? Justify your answer.

Case Study Based Question

The world is competitive nowadays. People face competition in even the tiniest tasks and are expected to give their best at every point in time. When people are unable to meet these expectations, they get stressed and could even go into depression. We get to hear a lot of cases where people are depressed due to reasons like peer pressure, studies, family issues, relationships, etc. and they eventually get into something that is bad for them as well as for others. So, to overcome this, Cognitive Behavioural Therapy (CBT) is considered to be one of the best methods to address stress as it is easy to implement on people and also gives good results. This therapy includes understanding the behaviour and mindset of a person in their normal life. With the help of CBT, therapists help people overcome their stress and live a happy life. For the situation given above,

1. Write the problem statement template
2. List any two sources from which data can be collected.
3. How do we explore the data?

Chapter: AI Ethics- II

MCQ

1. If a smart self-driving car met an accident with a person on the road, who is responsible morally?
   a. The car owner   b. The person   c. The developer   d.All of these
2. Which of the more important concern related to data?
   a. How does AI work?   b. How does AI take decisions?
   c. How AI collects data?   d. How does AI represent data?
3. Amazon used a system for recruitment, created a situation in which many eligible females were left out of the consideration. This is called _____.
   a. Misinterpretation of Data   b. Problem of Inclusion
   b. Gender Bias   d. Data Privacy
4. Amazon had been working on a secret AI recruiting tool. The machine-learning specialists uncovered a big problem: their new recruiting engine did not like women. The system taught itself that male candidates were preferable. It penalized resumes that included the word "women". This led to the failure of the tool. This is an example of
   a. Data Privacy   b. AI access   c. AI Bias   d.Data Exploration

5. Which of the following information will be collected when you open the newly downloaded app on your mobile?
   a. Contact, Location, Camera, Storage   b. Only contact and Camera
   c. Only Location and Storage   d. Any of the above depends on the app
6. Which of the following is a major source of data for major companies?
   a. Our vehicles   b.Our Home   c. Our lifestyle   d. Our smartphone
7. If a smart self-driving car met an accident with a person on the road, who is responsible morally?
   a. The car owner   b. The person   c. The developer   d. All of these
8. Which of the following can be a simple objective system that depends on human judgement?
   a. Logical Decision   b. Logical Data   c. Logical Input   d.Logical Access

Short Answer type

1. Explain Data privacy.
2. Write Major Issues around AI Ethics.
3. "Smartphones are major sources of data nowadays."Justify this statement.
4. Why ethical practices should be followed while developing solutions using AI?
5. Aman has searched on Google for salons, the first few searches he found mostly salons 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 a Positive one?
6. AI increased the gap between two classes of people. Which are these two classes of people?
7. Is it ethical that children to use technology to help to finish their study-related work?

Long Answer Type

1. Differentiate between Ethics and Moral with suitable examples.
2. What are the major AI ethical concerns related to AI adoption?
3. "In the coming years, AI-enabled machines will replace all the people who work as labourers."Justify this statement.
4. What do you understand about the problem of inclusion?