



O.S.D.A.V Public School, Kaithal  
Marking Scheme Half Yearly Exams, 2024

Subject: Artificial Intelligence

Class: IX

Set- A

Time:- \_\_\_\_ min.

M.M.:- 50

**General Instructions:**

Please read the instructions carefully.

1. This Question Paper consists of **four** sections: Section A , Section B., Section C and Section D
2. Section A & B has Objective type questions whereas Section C & D contains Subjective type questions.
3. All questions of a particular section must be attempted in the correct order.

**SECTION A : (Artificial Intelligence)**  
**OBJECTIVE TYPE QUESTIONS**

Q.	Answer all questions :	(1 x 20 = 20marks)
1		
1	For any AI project to be efficient, the training data should be _____ and relevant to the problem statement scoped. a) outsourced      b) free-sourced      c) authentic      d) All of these Ans: c) Authentic	1
2	In _____, the machine is trained with huge amounts of data which helps it in training itself around the data. a) Supervised Learning      b) Deep Learning      c) Classification      d) Unsupervised Learning Ans: b )Deep Learning	1
3.	Recently a popular social media company launched a campaign titled '10 year gap' where it encouraged its users to post their pictures before and after the gap of 10 years. Using this collection of images , they fine- tuned a lot of features of their social media platform. The collection of huge data of images took place _____ stage of AI project cycle. a)Problem Scoping      b) Data Exploration      c)Modeling      d)Data Acquisition Ans –d) Data Acquisition	1
4	IoT is abbreviated as a) Institute of Technology      b) Internet of Things      c) Index organized Table      d) Inter-operability Test Ans-      b) Internet of Things	1
5.	The intension of Machine Learning is a) recognize human's face      b)think through the algorithm and execute the task c)enable machines to learn by themselves using provided data d) trained with huge amount of data Ans- c)enable machines to learn by themselves using provided data	1
6.	<b>Statement 1: The data with which machine can be trained is the testing data.</b> <b>Statement 2: The data with which machine can be tested is the training data.</b> a)Statement 1 is Correct and Statement 2 is Incorrect      b)Statement 1 is Incorrect and Statement 2 is Correct c)Both statement 1 & 2 are correct      d) Both statement 1 & 2 are incorrect Ans-      d) Both statement 1 & 2 are incorrect	1
7	Which of the following is not an approach of data modeling? a. Rule Based      b. Learning Based      c. Knowledge Based Ans- c. Knowledge Based	1
8	Survey is valid source to acquire data for solving Problem. <b>(True/False)</b> <b>Ans-True</b>	1
9	_____ is the sub-field of AI that is focused on enabling computers to communicate with human being using natural language as human being do. a) Deep Learning      b) Machine Learning      c) NLP      d) Computer Vision Ans- c) NLP	1
10	Which of following comes under Problem Scoping? a) System Mapping      b) 4W Canvas      c) Data Features      d) Web Scraping Ans- b) 4W Canvas	1
11	Semantris Game based on _____ domain of AI. a)NLP      b)Computer Vision      c)Data Science      d)All of Above Ans- a)NLP	1
12	Which of following is not domain of artificial intelligence? a)Data Management System      b) Computer Vision      c)Natural Language Processing      d)Data Science Ans-      a)Data Management System	1
13	Which of following is not valid for Data Acquisition?	1









	a) Web Scraping    b) Survey    c) Sensor    d) Announcements Ans- d) Announcements	
14	In 2014 Amazon developed an AI recruiting system to streamline their hiring process. It was found to be discriminatory against women as the data used to train the model was from past 10 years, where most selected applicants were men due to the male dominance in tech industry. Amazon scrapped this system in 2018. Above is example of which AI Ethics? a) Bias and Fairness    b) Accountability    c) Transparency    d) Human AI Interaction Ans- a) Bias and Fairness	1
15	Identify A, B, C in the following diagram. (Hint: How AI, ML and DL related to each other)  A B C Ans-A-Artificial Intelligence b-Machine Learning c-Deep learning	1
16	The primary purpose of Data exploration in AI Project Cycle is_____ a) To make data more complicated    b) To Check Data Efficiency c) To discover pattern and insights in data    d) None of Above Ans- c) To discover pattern and insights in data	1
17	Search for images of Personal Secretary on Google, displaying predominantly the images of women is an example of _____ a) Data Privacy    b) Bias    c) Human Right    d) AI Inclusion Ans- b) Bias	1
18	_____ is practice of protecting digital information from unauthorized access, corruption, theft throughout its entire life cycle. a) Data Security    b) Data Privacy    c) Data Literacy    d) Data Acquisition b) Ans-Data Security	1
19	Quantitative Data is numerical in nature. (True/False) Ans-True	1
20	Praneet has taken extra packets of mouth freshener after dinner from restaurant. Is it considered as theft? Is it Moral or Ethical Concern? Ans=Ethical Concern	1
<b>SECTION B (Employability Skill)</b> <b>1x5=5</b>		
21	..... people are able to recognize their strengths and accept weaknesses at the same time. a) Arrogant    b) Unconfident    c) Self-confident    d) Negative Ans-Self-Confident	1
22	Radha wants to grow her hair and she applies a lot of hair oil. She does not wash her hair for days and sometimes it smells bad too. What would be your suggestion to her? (a) She can leave the oil in her hair, after all it helps her hair to grow. (b) She can leave it on at night and wash her hair every day before leaving home. (c) She should not apply the oil at all. (d) She can apply the oil and pour a little water on her hair before leaving home to reduce the smell. Ans-b	1
23	You may say 'Hi' when you meet _____. (a) your teacher in class (b) a senior in the office (c) your Principal (d) your friends at a shop Ans-(d) your friends at a shop	1
24.	What is the purpose of communication? (a) Inform (tell someone about something)    (b) Influence (get someone to do something you want) (c) Share thoughts, ideas, feelings    (d) All of the above Ans-(d) All of the above	1
25.	Which of the following is not a self-management skill? (a) Problem solving    (b) Bargaining    (c) Understanding self    (d) Confidence building Ans-(b) Bargaining	1

**SECTION C : SUBJECTIVE TYPE QUESTION (Employability Skill)**

**Answer 3 questions:**

**(5 marks)**

<b>Q.26</b>	Give examples of any four common signs used for visual communication.	<b>2</b>
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	<p><b>Visual Communication: Exchanging Information through Images</b></p> <p>Traffic symbol which communicates not to blow horn </p> <p>Sign for ladies and gents toilet </p> <p>Sign for flammable substances </p> <p>Sign used to pause a video or audio file in smartphone or computer </p> <p>Traffic Lights—Red for Stop; Yellow for Wait and Green for Go </p> <p>Sign showing railway crossing </p> <p>Sign for slippery surface </p> <p>Sign which communicates that the area is a no smoking zone </p>	
Ans:		
Q.27	<p>What are the factors that affect self-confidence?</p> <p>Ans: <b>Given below are some factors that decrease self-confidence.</b></p> <p>(a) <b>When we think we cannot do a particular work.</b></p> <p>(b) <b>When we keep thinking of our past mistakes and feel bad about it, instead of learning from them.</b></p> <p>(c) <b>When we expect to be successful at the first attempt itself and do not try again.</b></p> <p>(d) <b>When we are surrounded by people who have a negative attitude, which is reflected in their speech</b></p>	2
Q.28	<p>List any 04 self-management skill</p> <p>Ans 4: <b>Self Confidence, Self-Motivation, Self Control, Time Management</b></p>	1

**SECTION D : SUBJECTIVE TYPE QUESTION (20 Marks)**

Answer all questions in 20 – 30 words each (2 x 6= 12 marks)

Q.29	<p>How is machine learning related to artificial intelligence?</p> <p>Ans: <b>Machine learning is a part of artificial intelligence (AI) that focuses on teaching computers to learn from data and improve their performance over time without being explicitly programmed. In patterns, making them better for complex or evolving problems where rules are hard to define.</b></p>	2
Q.30	<p>Explain 4 W problem canvas in problem scoping.</p> <p>Ans:</p> <p>The 4Ws problem canvas is the basic template while scoping a problem and using this canvas, the picture becomes clearer while we are working to solve it.</p> <p>a) Who: The “Who” block helps you in analyzing the people getting affected directly or indirectly due to it? Under this, you find out who the ‘stakeholders’ to this problem are and what you know about them. Stakeholders are the people who face this problem and would be benefitted with the solution.</p> <p>b) What: Under the “What” block, you need to look into what you have on hand. At this stage, you need to determine the nature of the problem. What is the problem and how do you know that it is a problem?</p> <p>c) Where: In this block, you need to focus on the context/situation/location of the problem. It will help you look into the situation in which the problem arises, the context of it, and the locations where it is prominent.</p> <p>d) Why: in the “Why” canvas, think about the benefits which the stakeholders would get from the solution and how would it benefit them as well as the society.</p>	2
Q.31	<p>Name various methods of collecting data.</p> <p>Ans: <b>Survey, Sensor, API, Observations, Camera, Web Scraping</b></p>	2
Q.32	<p>What do you mean by Problem Statement Template?</p> <p>Ans: Problem Statement Template helps us to summarize all key points into single template.</p>	2
Q.33	<p>What do you understand by term True Positive and False Positive?</p> <p>Ans: <b>True Positive: When Prediction &amp; Reality Matches</b></p> <p><b>Prediction is True</b></p> <p><b>False Positive: When Prediction &amp; Reality not matches</b></p> <p><b>Prediction is True.</b></p>	2
Q.34	<p>What are some common challenges in deploying AI models?</p> <p>Ans: <b>Common challenges in deploying AI models include ensuring the model works well with real-world data, integrating it with existing systems, monitoring and maintaining its performance over time, and managing the costs of deployment.</b></p>	2

Answer all questions in 50– 80 words each (4 x 2 = 8 marks)

Q.35	Differentiate between Ethics & Moral with example. Write major issues around AI ethics.	4
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Morals	Ethics
<ul style="list-style-type: none"> <li>▪ The beliefs dictated by our society.</li> </ul>	<ul style="list-style-type: none"> <li>▪ The guiding principles to decide what is good or bad.</li> </ul>
<ul style="list-style-type: none"> <li>▪ Morals are not fixed and can be different for different societies.</li> </ul>	<ul style="list-style-type: none"> <li>▪ These are values that a person themselves chooses for their life.</li> </ul>
<ul style="list-style-type: none"> <li>▪ Examples: <ul style="list-style-type: none"> <li>▪ Always speak the truth</li> <li>▪ Always be loyal</li> <li>▪ Always be generous</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>▪ Examples: <ul style="list-style-type: none"> <li>▪ Is it good to speak the truth in all situations?</li> <li>▪ Is it good to be loyal under all circumstances?</li> <li>▪ Is it necessary to always be generous?</li> </ul> </li> </ul>

Ans:

**Q.36**

What are various stages of AI Project Cycle? Explain each with example.

**4**

Ans: The steps involved in AI project cycle are as given:

- The first step is Scope the Problem by which, you set the goal for your AI project by stating the problem which you wish to solve with it. Under problem scoping, we look at various parameters which affect the problem we wish to solve so that the picture becomes clearer
- Next step is to acquire data which will become the base of your project as it will help you in understanding what the parameters that are related to problem scoping.
- Next, you go for data acquisition by collecting data from various reliable and authentic sources. Since the data you collect would be in large quantities, you can try to give it a visual image of different types of representations like graphs, databases, flow charts, maps, etc. This makes it easier for you to interpret the patterns in which your acquired data follows.
- After exploring the patterns, you can decide upon the type of model you would build to achieve the goal. For this, you can research online and select various models which give a suitable output.
- You can test the selected models and figure out which is the most efficient one.
- The most efficient model is now the base of your AI project and you can develop your algorithm around it.
- Once the modelling is complete, you now need to test your model on some newly fetched data. The results will help you in evaluating your model and hence improving it. Finally, after evaluation, the project cycle is now complete and what you get is your AI project.

Evaluation: To check the efficiency and performance of model

Deployment: This is last stage of AI Project Cycle in which we put model in real world scenario.



	<p>be discriminatory against women as the data used to train the model was from past 10 years , where most selected applicants were men due to the male dominance in tech industry. Amazon scraped this system in 2018.Above is example of which AI Ethics?</p> <p>a)Bias and Fairness      b) Accountability      c)Transparency      d)Human AI Interaction</p> <p><b>Ans- a)Bias and Fairness</b></p>	
12	<p>Which one of following is Second Stage of AI Project Cycle?</p> <p>a) Data Exploration      b) Evaluation      c) Modeling      d) Data Acquisition</p> <p><b>Ans-d)Data Acquisition</b></p>	1
13	<p>What does NLP stands for in AI?</p> <p>a) Neutral Learning Projection      b) Neuro –Linguistic Programming</p> <p>c)Natural Language Processing      d)Neuro Logic Presentation</p> <p><b>Ans-c)Natural Language Prrocessing</b></p>	1
14	<p>Which of following is not a part of the 4 W's Problem Canvas?</p> <p>a) Who      b)What      c)Why      d)Which</p> <p><b>Ans d)which</b></p>	1
15	<p>Deployment is final stage of in AI project cycle where the AI model or solution is implemented in a real world scenario(True / False)      <b>Ans-True</b></p>	1
16	<p>The process of breaking down the big problem into series of simple steps is known as:</p> <p>a)Efficiency      b)Modularity      c) Both a and b      d) None of Above</p> <p><b>Ans-b)Modularity</b></p>	1
17	<p>Weight of person is ____ <b>quantitative</b> _____ type of Data.</p> <p>a. Qualitative      b. Quantitative <b>Ans-b</b></p>	1
18	<p>_____ allows us to understand why things are happening in particular way.</p> <p>a)Data      b)Information      c)Knowledge      d)Wisdom</p> <p><b>Ans-d)Wisdom</b></p>	1
19	<p>Artificial Intelligence and machine learning systems can display unfair behavior if not trained properly.(True/False)      <b>Ans-True</b></p>	1
20	<p><b>Preference for one over other is known as _____</b></p> <p>a) Data Privacy      b) Bias      c) Human Right      d) AI Inclusion</p> <p><b>Ans-b)bias</b></p>	1
<b>SECTION B (Employability Skill )</b>		<b>1x5=5</b>
21	<p>Dressing and grooming are important because they help us to look _____.</p> <p>(a) smart      (b) untidy      (c) shabby      (d) All of the above</p> <p><b>Ans-a)Smart</b></p>	1
22	<p>Which of the following is not a self-management skill?</p> <p>(a) Problem solving      (b) Bargaining      (c) Understanding self      (d) Confidence building</p> <p><b>Ans-b)Bargaining</b></p>	1
23	<p>Renuka is joining a new school. Which of the following questions will help her become comfortable with her new classmates?</p> <p>(a) How long have you been studying here?      (b) Would you like to share my lunch?</p> <p>(c) What do you all do in your free time?      (d) All the options are correct.</p> <p><b>Ans-d(All options are correct)</b></p>	1
24.	<p>Why do we send emails?</p> <p>(a) To reach on time      (b) To share documents and files</p> <p>(c) To talk to each other      (d) To meet each other</p> <p><b>Ans-b(To share documents and files)</b></p>	1
25.	<p>What does an upright (straight) body posture convey/ show?</p> <p>(a) Shyness      (b) Fear      (c) confidence      (d) Intelligence</p> <p><b>Ans-c(Confidence)</b></p>	1

**SECTION C : SUBJECTIVE TYPE QUESTION (Employability Skill)**

Answer 3 questions:

(5 marks)

<p><b>Q.26</b></p> <p>List three things you will do for personal grooming in each of CARE, WASH and AVOID to keep clean. Ans:</p>	<div style="border: 1px solid black; padding: 10px;"> <p align="center"><b>Three steps to personal hygiene</b></p> <div style="display: flex; justify-content: space-between;"> <div style="width: 30%; border: 1px solid black; padding: 5px;"> <p><b>CARE</b></p> <ul style="list-style-type: none"> <li>• Keep your hair free of dandruff</li> <li>• Rub oil/cream to take care of your skin</li> <li>• Brush your teeth daily</li> <li>• Change your toothbrush as soon as it deshapes</li> <li>• Cut your nails every week</li> </ul> </div> <div style="width: 30%; border: 1px solid black; padding: 5px;"> <p><b>WASH</b></p> <ul style="list-style-type: none"> <li>• Wash your hands frequently</li> <li>• Take bath every day</li> <li>• Wash your clothes regularly</li> <li>• Wash your hair at least every second day</li> <li>• Wash your feet often</li> </ul> </div> <div style="width: 30%; border: 1px solid black; padding: 5px;"> <p><b>AVOID</b></p> <ul style="list-style-type: none"> <li>• Blow your nose/cough into a handkerchief to avoid spreading germs</li> <li>• Keep your feet dry and change your socks every day</li> </ul> </div> </div> </div>	<p align="center">2</p>
<p><b>Q.27</b></p>	<p>Write down the different types of verbal communication. Give an example for each type.</p> <ol style="list-style-type: none"> <li>1. Oral Communication: Face to Face Communication, Telephonic Communication</li> <li>2. Written Communication: Letter, Message, Email.</li> </ol>	<p align="center">2</p>
<p><b>Q.28</b></p> <p>Write two to three lines you would use to introduce yourself. Ans:</p>	<div style="border: 1px solid black; padding: 10px;"> <p align="center"><i>Figure 1.16: Introducing Yourself</i></p> </div>	<p align="center">1</p>

**SECTION D : SUBJECTIVE TYPE QUESTION (20 Marks)**

Answer all questions in 20 – 30 words each (2 x 6= 12 marks)

<p><b>Q.29</b></p> <p>Differentiate between rule-based and learning-based AI modelling approaches. Ans: There are two approaches for AI Modelling; <b>Rule Based and Learning Based.</b></p> <p>The Rule based approach generates pre-defined outputs based on certain rules programmed by humans. Whereas, machine learning approach has its own rules based on the output and data used to train the models.</p> <p align="center"><b>OR</b></p> <p>Rule Based Approach Refers to the AI modelling where the relationship or patterns in data are defined by the developer. The machine follows the rules or instructions mentioned by the developer, and performs its task accordingly. Whereas in Learning based approach, the relationship or patterns in data are not defined by the developer. In this approach, random data is fed to the machine and it is left to the machine to figure out patterns and trends out of it</p>		<p align="center">2</p>
<p><b>Q.30</b></p> <p>Explain Data Privacy. Ans: Data privacy is the protection of personal data from those who should not have access to it and the ability of individuals to determine who can access their personal information.</p>		<p align="center">2</p>
<p><b>Q.31</b></p> <p>Name 2 government websites from where you can get open source data. Ans: data.gov.in, india.gov.in</p>		<p align="center">2</p>
<p><b>Q.32</b></p> <p>How will you differentiate between training data and testing data? Elaborate with examples. Ans. The training data is used to train the machine learning algorithm. The testing data is used to evaluate the accuracy of the trained algorithm. The training data should represent the data the algorithm will encounter in the real world.</p> <p>Example: Previous Salary Data is Training Data Next Salary Prediction is Testing Data</p>		<p align="center">2</p>
<p><b>Q.33</b></p> <p>What are various model evaluation techniques? Ans: F1 Score, Accuracy, Precision, Recall.</p>		<p align="center">2</p>

<b>Q.34</b>	Why is deployment important phase in AI Project Cycle? Ans: Deployment is important phase in AI Project Cycle because in this stage we put model in real life scenario.	<b>2</b>
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**Answer all questions in 50– 80 words each (4 x 2 = 8 marks)**

<b>Q.35</b>	<p>What do you mean by Artificial Intelligence? Explain 3 domains of AI with example.</p> <p>Ans: Artificial Intelligence (AI) refers to any technique that enables computers to mimic human intelligence i.e., make decisions, predict the future, learn and improve on its own. With respect to the type of data fed in the AI model, AI models can be broadly categorised into three domains:</p> <ol style="list-style-type: none"> <li>1. Data sciences</li> <li>2. Computer vision</li> <li>3. Natural Language Processing</li> </ol> <p>Data Science takes input in the form of numeric and alphanumeric data. Eg: YouTube Recommendation</p> <p>Computer Vision takes input in the form of images and videos. Eg: Snapchat Filter, Face Recognition</p> <p>Natural Language Processing takes input in the form of text and speech. Eg: Alexa, Siri</p>	<b>4</b>
<b>Q.36</b>	<p>What are various stages of AI Project Cycle? Explain each with example.</p> <p>Ans: The steps involved in AI project cycle are as given:</p> <ul style="list-style-type: none"> <li>• The first step is Scope the Problem by which, you set the goal for your AI project by stating the problem which you wish to solve with it. Under problem scoping, we look at various parameters which affect the problem we wish to solve so that the picture becomes clearer</li> <li>• Next step is to acquire data which will become the base of your project as it will help you in understanding what the parameters that are related to problem scoping.</li> <li>• Next, you go for data acquisition by collecting data from various reliable and authentic sources. Since the data you collect would be in large quantities, you can try to give it a visual image of different types of representations like graphs, databases, flow charts, maps, etc. This makes it easier for you to interpret the patterns in which your acquired data follows.</li> <li>• After exploring the patterns, you can decide upon the type of model you would build to achieve the goal. For this, you can research online and select various models which give a suitable output.</li> <li>• You can test the selected models and figure out which is the most efficient one.</li> <li>• The most efficient model is now the base of your AI project and you can develop your algorithm around it.</li> <li>• Once the modelling is complete, you now need to test your model on some newly fetched data. The results will help you in evaluating your model and hence improving it. Finally, after evaluation, the project cycle is now complete and what you get is your AI project.</li> </ul> <p>Evaluation: To check the efficiency and performance of model</p> <p>Deployment: This is last stage of AI Project Cycle in which we put model in real world scenario.</p>	<b>4</b>