



Indian School Al Wadi Al Kabir
Mid-Term Examination
ARTIFICIAL INTELLIGENCE (CODE:417)

Class: IX
Date: 14/09/2023

Time: 2 Hour
Max. Marks: 50

General Instructions:

SECTION A: I. All Questions are compulsory.

SECTION B: II. Answer any 5 out of the given 6 questions each carries 2 marks.

III. Answer any 4 questions out of given 5 questions each carries 4 marks.

Answer Key

SECTION A: OBJECTIVE TYPE QUESTIONS

1. Answer all the following:

(24 x 1 =24 marks)

1.	d. Making a machine Intelligent	1
2.	a. Rock, Paper, Scissors	1
3.	d. All the above	1
4.	b. Chatbot	1
5.	c. understanding and generation	1
6.	a. Machine Learning	1
7.	b. Computer vision	1
8.	c. AI Bias	1
9.	d. Black Box problem	1
10.	d. Prototyping	1
11.	d. All of the above	1
12.	a. Structured Data	1
13.	a. Learning Based	1
14.	a. Evaluation	1
15.	Data Acquisition	1

16.	Training Data	1
17.	d. Both Statement1 and Statement 2 are correct	1
18.	c. Computer Vision	1
19.	a. Smart Home	1
20.	d. All of the above	1
21.	SDG 10 ----- c) Reduced Inequalities	1
22.	SDG 13----- a) Climate Change	1
23.	SDG 14----- d) below Water	1
24.	SDG 15----- e) Life on Land	1

SECTION B: SUBJECTIVE TYPE QUESTIONS

II. Answer any 5 out of the given 6 questions

(5 x 2 = 10 marks)

25.	How AI can help in attaining SDG11	Marks
	Ans: Sustainable Cities and Communities (SDG - 11) AI systems provide improved well-being in cities include a tool for semi-automatic digitization of sketch maps to support the inclusion of indigenous communities through the documentation of their land rights, a system for traffic monitoring based on Wireless Signals approaches for efficient waste management air quality modelling and urban health monitoring systems	1 1
26.	List any 4 basic skills that anyone should have for building a career in AI?	
	<u>Write any four skills given below.each carries 0.5 Marks</u> 1. Communication skills: This is an essential skill for every job. Communication helps a person in many ways. 2. Knowledge of Basic Maths and Science: A person must have good knowledge of basic maths and science principles to understand and work with AI. 3. Applied mathematics: Many systems and AI tools using applied mathematics concepts. Some AI research also requires applied mathematics principles. 4. English speaking and Listening: As dealing with technology and other concerns the English language will be an added advantage for future high paying jobs. 5. Techno Savvy: Techno savvy refers to the knowledge of basic computers and online communication medium which is very essential in today's scenarios too. 6. Machine Learning: It essential for future jobs related to AI. A person who deals with AI that also deals with Machine Learning projects. 7. Data Science: As you are familiar with the domain of AI, Data is playing a key role in jobs related to AI.	0.5 0.5 0.5 0.5

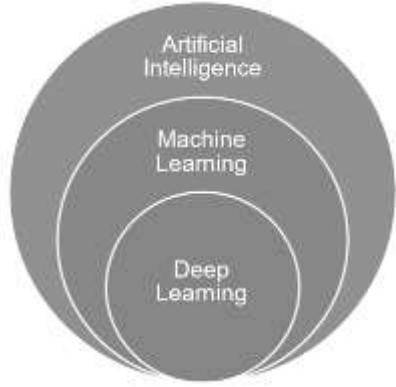
	<p>8. Programming Languages: Programming languages like python, R, Go, etc. are part of AI tools and technology. So it is also a mandatory part for job seekers.</p> <p>9. Data Analysis: Many big companies have a job role as a Data Analyst who is responsible for data analysis. Data analysis help in taking the right decision.</p> <p>10. AI research: It is advanced skill for job for future development and implementation of AI as well current growth</p>	
27.	Explain any one example of possibilities of AI technology for customer experience.	
	<p><u>Answer any same or similar example as given below</u></p> <p><u>Walmart</u></p> <p>It is a mall and retailer like D-mart which is serving through its offline stores as well as online stores. It is using AI technology for improving its customer experience for in-store and online. It uses AI with IoT with Scan and Go, Pick up towers. It is also experimenting with facial recognition technology to measure a customer's mood is happy or sad inside the store.</p> <p><u>Hello Barbie</u></p> <p>In the market, dolls are available which can talk with human beings. These toys use AI concepts like Language Processing, Machine Learning, and Advanced Analytics. These toys having a microphone that records the voice of the child and selects the dialog from the server and gives the response.</p> <p><u>Talking with machines</u></p> <p>It is one audio drama created by BBC. It allows listeners to have a conversation with machines and allows listeners to answer the questions. By these questions and add to something to the story. It works with google Echo and Google Home.</p>	2
28.	What is Rule based learning?	
	<ul style="list-style-type: none"> •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. 	1 1
29.	Define Problem statement template.	
	<ul style="list-style-type: none"> •When the 4Ws in problem scoping are completely filled, prepare a summary of those 4Ws.This summary is known as the problem statement template. •This template explains all the key points in a single template. So if the same problem arises in the future this statement helps to resolve it easily. 	1 1
30.	Explain Data Exploration stage	
	<p>Data Exploration is the third stage in AI project cycle where the data collected is arranging uniformly</p> <ul style="list-style-type: none"> •This stage also includes the techniques and tools used to visualize data through complex statistical methods. 	1 1

III. Answer any 4 questions out of given 5 questions

(4x 4 = 16 marks)

31.	Explain any four components of a good AI policy.				
	<p><u>Answer any four components given below</u></p> <p>1. Transparent System :A transparent system refers to the guideline and system purposes should be very clear to its users. While collecting data the purpose and the detailed guide about what to be done with the data should be known to the users.</p> <p>2. Right data collection :When the data is collected by the AI system it must be right to the data which the system is collecting. Without the collection of data, it cannot take the right decision for the user.</p> <p>3. Freedom of leaving system:The user must have the freedom to leave the system. After using such system if user want to leave the system, the freedom should be given to the users.</p> <p>4. Design:The system should be designed in such a manner that the data collection and purpose should be limited. This helps the users to stay and use the system in a good manner. The interface itself provides such controls to users.</p> <p>5. Data Deletion:When the user leave the system, his data should be deleted. Or sometimes user requests to delete their data it should be provided in the system itself.</p>	1+1+1+1			
32.	<p>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 maneuver the robot injures a person.</p> <p>a) Who can be held liable for damages caused by autonomous systems? List two AI Ethics.</p>				
	<p>a) Who can be held liable for damages caused by autonomous systems?</p> <p>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.</p> <p>b) List two AI Ethics.(Any two out of the following)</p> <p>AI Bias, AI Access, Data privacy, AI for kids.</p>	2+2			
33.	Differentiate Artificial Intelligence, Machine Learning and Deep Learning.				
	<table border="1" style="width: 100%; background-color: #4a86e8; color: white;"> <tr> <td style="width: 33%; text-align: center;">Artificial Intelligence</td> <td style="width: 33%; text-align: center;">Machine learning</td> <td style="width: 33%; text-align: center;">Deep Learning</td> </tr> </table>	Artificial Intelligence	Machine learning	Deep Learning	1+1+1+1
Artificial Intelligence	Machine learning	Deep Learning			

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



34. Suhana works for a company wherein she was assigned the task of developing a project using AI project cycle. She knew that the first stage was scoping the problem. Help her list and explain the remaining stages that she must go through to develop the project.

Data Acquisition	Collecting accurate and reliable data
Data Exploration	Arranging the data uniformly
Modelling	Creating Models from the data
Evaluation	Evaluating the project

1+1+1+1

35. Differentiate Supervised and Unsupervised learning with examples

Supervised learning is a learning in which we teach or train the machine using data which is well labelled that means some data is already tagged with the correct answer. After that, the machine is provided with a new set of examples (data) so that supervised learning

2

algorithm analyses the training data (set of training examples) and produces a correct outcome from labelled data.

Unsupervised Learning: An unsupervised learning model works on unlabeled dataset. This means that the data which is fed to the machine is random and there is a possibility that the person who is training the model does not have any information regarding it. The unsupervised learning models are used to identify relationships, patterns and trends out of the data which is fed into it. It helps the user in understanding what the data is about and what are the major features identified by the machine in it.

2