O.S.D.A.V.Public School, Kaithal
May Exam, 2025
Subject: Artificial Intelligence
Class : XI **Set- A**

Time:- ____ min. **M.M.:- 25**

SECTION A: OBJECTIVE TYPE QUESTIONS

1.	**What will be the data type of the following variable A= '101'** **a) String b) Integer c) Float d) Boolean** **Ans. a)**	**1**
2.	**Write the output of the following code:** **x = 2** **x = 5** **x = x + x** **print(x)** **a) 7 b) 10 c) 4 d) 25** **Ans. b)**	**1**
3.	**Which of the following symbol used for comment?** **a) # b) ! c) ? d) //** **Ans. a)**	**1**
4.	**Output of print (2*3**2) is** a) 16 b) 64 c) 18 d) error Ans. c)	
5.	**Write the Output for the following code** **a = 9** **x = str(a)** **b = 5** **y = str(b)** **print(x+y)** **Ans. 95**	**1**
6.	**Find the error in the following code (if any) and rewrite the code** **a = 6** **b = 7** **if (a=b)** **a+b=c** **else** **a-b=c** **Ans.** **if (a==b):** **c=a+b** **else:** **c=a-b**	**1**
7.	**What is the role of reinforcement learning in machine learning?** **a. Creating rules automatically** **b. Recognizing patterns in untagged data** **c. Rewarding desired behaviors and/or penalizing undesirable ones** **d. Mimicking human conversation through voice or text** **Ans. C**	**1**
8.	**The no. Of hidden layer in Neural Network depends on** **A. No. of other layer b. Data Input Layer** **c. Data Output Layer d. Complexity of the problem** **Ans. D.**	**1**
9.	**What is the main goal of reinforcement learning?** **A. To learn from Labelled data**	**1**

	B. To find out the hidden Rule **C. To maximize cumulative reward by interacting with an environment** **D. To process abd interpret natural Language** **Ans. C.**	
10.	**The Dartmouth conference was held in year :** **A. 1980 b. 1965 c. 1956 d. 1966** **Ans. C.**	**1**
11	**Write a program to print the roots of quadratic equation.** **import math** **a = 1** **b = -2** **c = 1** **# Calculate the discriminant** **discriminant = b ** 2 - 4 * a * c** **if discriminant > 0:** **root1 = (-b + math.sqrt(discriminant)) / (2 * a)** **root2 = (-b - math.sqrt(discriminant)) / (2 * a)** **print("Roots are real and distinct")** **print("Root 1:", root1)** **print("Root 2:", root2)** **else:** **print("Roots are imaginary")**	**3**
12	**Write a program to accept the four digit no. from the user and interchange first and last digit.** **Ans. n=int(input("Ente four digit number"))** **q=n//1000** **r=n%1000** **q1=r//100** **r1=r%100** **q2=r1//10** **r2=r%10** **rev=r2*1000+q2*100+q1*10+q** **print("New Digit is",rev)**	**3**
13	**Categorize the applications into the three domains:** **Statistical Data, Natural Language Processing (NLP), and Computer Vision.** **1. Fraud detection in financial transactions** **2. Augmented reality applications (e.g., Snapchat filters)** **3. Text summarization for news articles** **Ans. 1. Statastical Data** **2. CV** **3. NLP**	**3**
14	**Difference between Supervised and UnSupervised Learning.** **Supervised Learning** ● Supervised learning is a type of machine learning where the model learns from labelled data, which means that the input data is accompanied by the correct output. ● In supervised learning, the algorithm learns to map input data to output labels based on example input-output pairs provided during the training phase. ● The goal of supervised learning is to learn a mapping function from input variables to output variables so that the model can make predictions on unseen data. ● Examples of supervised learning algorithms include linear regression, logistic regression, decision trees, support vector machines (SVM), and neural networks. **Unsupervised Learning** Unsupervised learning is a type of machine learning where the model learns from	**3**

	unlabelled data, which means that the input data is not accompanied by the correct output. ● In unsupervised learning, the algorithm tries to find hidden patterns or structure in the input data without explicit guidance. ● The goal of unsupervised learning is to explore and discover inherent structures or relationships within the data, such as clusters, associations, or anomalies. ● Examples of unsupervised learning algorithms include k-means clustering, hierarchical clustering, principal component analysis (PCA), and auto encoders.	
15	**Define Unstructured Data.** **unstructured data lacks any specific organization, making it more challenging to analyze compared to structured data. Examples of unstructured data include images, text documents, customer comments, and song lyrics. Since unstructured data does not follow a predefined format, extracting meaningful insights from it requires specialized tools and techniques.**	**1**
16	**Write any two benefits of Artificial Intelligence.** Benefits: • Increased efficiency and productivity: AI automates tasks, analyzes data faster, and optimizes processes, leading to increased efficiency and productivity across various sectors. • Improved decision-making: AI analyzes vast amounts of data and identifies patterns that humans might miss, assisting in data-driven decision-making and potentially leading to better outcomes. • Enhanced innovation and creativity: AI tools can generate new ideas, explore possibilities, and automate repetitive tasks, freeing up human resources for more creative pursuits and innovation. • Progress in science and healthcare: AI aids in drug discovery, medical diagnosis, and personalized medicine, contributing to advancements in healthcare and scientific research.	**2**

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SECTION A: OBJECTIVE TYPE QUESTIONS

1.	**What will be the data type of the following variable A= 101** **a) String b) Integer c) Float d) Boolean**	**1**
2.	**Write the output of the following code:** **x = 2** **x = 5** **x = x * x** **print(x)** **a) 7 b) 10 c) 4 d) 25** **Ans. D.**	**1**
3.	**_____ spaces should be left for indentation.** **a) 7 b) 10 c) 4 d) 25** **Ans. C.**	**1**
4.	**Output of print (2**3*2) is** a)16 b) 64 c) 18 d) error Ans. a.	**1**
5.	**Write the Output for the following code** **a = 6** **x = str(a)** **b = 7** **y = str(b)** **print(x+y)** **Ans. 67**	**1**
6.	**Find the error in the following code (if any) and rewrite the code** **a = 6** **b = 7** **if (a=b)** **a+b=c** **else** **a-b=c** **Ans.** **if (a==b):** **c=a+b** **else:** **c=a-b**	**1**
7.	**Divya was learning neural networks. She understood that there were three layers in a neural network. Help her identify the layer that does processing in the neural network.** **a. Output layer b. Hidden layer c. Input layer d. Data layer** **Ans. B)**	**1**
8.	**A boy has to identify some patterns in the random street dogs of his colony to cluster them for a specific purpose. Which model he should use that will inherent the trends and patterns on its own?** **A. Supervised b. Unsupervised c. Reinforcement d. None** **Ans. B.**	**1**
9.	**Example of augmented reality is** **A. Alexa b. You tube c. Lenskart app d. Myntra** **Ans. C.**	**1**
10.	**What AI algorithms do with the image pixels in computer vision?** **A. They count the pixel one by one** **B. They break the image into numbers amd analyze them** **C. They change the pixels into words**	**1**

D. They delete the pixels to make the image smaller.
Ans. B.

11 **Write a program to accept percentage from the user and display the grade according to the following criteria:** **3**

Marks	Grade
> 90	A
> 80 and <= 90	B
>= 60 and <= 80	C
below 60	D

Ans.

```
p=float(input("Enter percentage")
if(p>90):
   print("Grade A")
elif(p>80)and(p<=90):
   print("Grade B")
elif(p>=60)and(p<=80):
  print("Grade C")
else:
  print("Grade D")
```

12 **Write a program to accept 4 digit number and replace first half with second half in least steps as 3456 converted in to 5634.**

Ans.

```
n=int(input("Enter four digit number"))
q=n//1000
r=n%1000
q1=r//100
r1=r%100
q2=r1//10
r2=r%10
rev=q2*1000+r2*100+q*10+q1
print("New Digit is",rev)
```

13 **Categorize the applications into the three domains:** **3**
Statistical Data, Natural Language Processing (NLP), and Computer Vision.
1.Gesture recognition for human-computer interaction
2. Chatbots for customer service
3. Spam email detection
Ans. 1. CV
2. NLP
3. NLP

14 **Write the difference between Machine Learning and Deep Learning.** **3**

Differences Between Deep Learning and Traditional Machine Learning:

Feature	Traditional Machine Learning	Deep Learning
Dataset Size	Works well with small datasets	Requires large datasets
Computational Power	Can run on low-end machines	Heavily dependent on high-end machines (GPUs/TPUs)
Approach	Divides tasks into sub-tasks and combines results	Solves problems end-to-end
Training Time	Takes less time to train	Takes longer to train
Testing Time	May increase testing time	Generally faster testing once trained

15 Define Structured Data. **1**
Structured data is like a neatly arranged table, with rows and columns that make it easy to understand and work with. It includes information such as names, dates, addresses and stock prices. Because of its organized nature, it is straightforward to analyze and manipulate, making it a preferred format for many data-related tasks.

16	**Write any two limitation of Artificial Intelligence.** Limitations: • Job displacement: Automation through AI raises concerns about job displacement and the need for workforce retraining and upskilling. • Ethical considerations: Concerns exist around bias in AI algorithms, potential misuse for surveillance or manipulation, and the need for ethical guidelines and regulations. • Lack of explainability: Some AI models, particularly complex ones, lack transparency in their decision-making, making it difficult to understand how they arrive at their outputs. • Data privacy and security: Large-scale data collection and use for AI development raise concerns about data privacy and security vulnerabilities.	**2**