कक्षा / CLASS –X   अधिकतम अंक/MAX. MARKS –50
विषय /SUB. -Artificial Intelligence   समय/TIME – 02 घंटे/Hours

General Instructions:
1. Please read the instructions carefully.
2. This Question Paper consists of 21 questions in 2 sections: Section A & Section B.
3. Section A has Objective type questions whereas Section B contains Subjective type questions.
4. Out of the given (5 + 16 =) 21 questions, a candidate has to answer (5 + 10 =) 15 questions in the allotted (maximum) time of 2 hours.
5. All questions of a particular section must be attempted in the correct order.
6. **SECTION A - OBJECTIVE TYPE QUESTIONS (24 MARKS):**
   - This section has 05 questions.
   - Marks allotted are mentioned against each question/part.
   - There is no negative marking.
   - Do as per the instructions given.
7. **SECTION B – SUBJECTIVE TYPE QUESTIONS (26 MARKS):**
   - This section has 16 questions.
   - A candidate has to do 10 questions.
   - Do as per the instructions given.
   - Marks allotted are mentioned against each question/part.

SECTION A: OBJECTIVE TYPE QUESTIONS

Q. 1   Answer any 4 out of the given 6 questions on Employability Skills (1 x4 = 4)

i. Pranjali gets up at 5 am and goes to her badminton classes. Then she comes home and finishes her homework before going to school. She does this all by herself. No one tells her to do it. This is an example of   1
a) Self-motivation
b) External motivation
c) Both self and external motivation
d) Not any specific type of motivation

ii. _____act as an interface between the user and the computer.   1
a) Operating System
b) MS Excel
c) Impress
d) Digital Documentation

iii. Which of the following are misconception about Entrepreneur?   1
a) Entrepreneurs are born, not made.
b) A person having a big business is an entrepreneur.
c) A person needs a lot of money to start a business.
d) All of the above

iv. SMART method can be used to set goals to make you successful in your   1

career and personal life. What does 'M' in SMART stand for?
a) Motivator
b) Measurable
c) Maintainable
d)Mentor

v. Which of these is NOT a common communication barrier? 1
a) Linguistic barrier
b) Interpersonal barrier
c) Financial barrier
d) Organizational barrier

vi. Choose the option which defines sustainable development. 1
a) Taking care of future generations.
b) Taking care of only ourselves.
c) Taking care of ourselves and the future generations.
d) None of the above

Q. 2 Answer any 5 out of the given 6 questions (1 x 5 = 5 marks)

i. Which of the following statement is incorrect? 1
a. Email Filtering is an application of NLP
b. Price comparison websites are applications of Data Science
c. Virtual Assistants are not applications of NLP
d. Self-driving cars are applications of Computer Vision.

ii. Results based on discriminatory assumptions made while developing 1
algorithm by the developer is called as _____.
a) AI Ethics
b) AI Bias
c) Test Data
d) Training Data

iii. The dataset is divided in two parts _____. 1
a) Machine dataset & Model dataset
b) Training dataset & Test dataset
c) Global dataset & local dataset
d) None of the above

iv. Which of the following refers to "Where" among 4Ws canvas? 1
a) stakeholders
b) nature of the problem
c) context/situation/location
d) solution or benefits to the stakeholders

v. Which industry uses data science to analyze customer profiling and past 1
expenditures?
a) Genetics & Genomics
b) Fraud and Risk Detection
c) Internet Search
d) Airline Route Planning

vi. Aaron is facing issue in his internet connectivity at home. He called 1
customer care service, A virtual assistant took his complaint and replied
with an acknowledgement number. What is the AI technology used by

Internet service provider?
a) Data Science
b) Machine Learning
c) Computer Vision
d) Natural Language Processing

Q. 3   Answer any 5 out of the given 6 questions (1 x 5 = 5 marks)

i. _____ is the ability to recognize and create sounds, rhythm and sound pattern.   1
a) Mathematical Logical Reasoning
b) Musical Intelligence
c) Spatial Visual Intelligence
d) Linguistic Intelligence

ii. The method of collecting correct and dependable data to work with is known as _____.
a) Problem Scoping
b) Data Acquisition
c) Data Exploration
d) Modelling

iii. What is the purpose of website recommendations?   1
a) To improve user experience
b) To promote products
c) To suggest similar products
d) All of the above

iv. What is the primary goal of Computer Vision?   1
a) To enhance image quality
b) To interpret and make decisions based on visual data
c) To store images efficiently
d) To increase resolution of images

v. What is a chatbot called which uses simple FAQs without any intelligence?   1
a) Smart Chatbot
b) Script Chatbot
c) AI Chatbot
d) ML Chatbot

vi. The process of understanding the reliability of any AI model based on output by feeding the test dataset is   1
a) Data feed
b) Data Reliability
c) Model Evaluation
d) None of these

Q. 4   Answer any 5 out of the given 6 questions (1 x 5 = 5 marks)

i. Based on the image below, choose the correct domain or domains of AI required for the google search engine: 1

a) Data Science
b) NLP
c) Computer Vision
d) All of the above

ii. The percentage of true positive cases versus all the cases where the   1
prediction is true is defined as
a) Precision
b) Accuracy
c) F1 Score
d) None of these

iii. What does CSV stand for?   1
a) Comma separated values
b) Computer spreadsheet values
c) Centralized storage volumes
d) Compressed structured variables

iv. What does segmentation in Computer Vision refer to?   1
a) Enhancing image details
b) Dividing an image into parts or regions
c) Reducing image size
d) Increasing image resolution

v. _____are the words which occur very frequently in the corpus but do not   1
add any value to it.
a) Special Characters
b) Stopwords
c) Roman Numbers
d) Useless Words

vi. The measure of balance between precision and recall.   1
a. Accuracy
b. F1 Score
c. Precision
d. None of these

Q. 5   Answer any 5 out of the given 6 questions (1 x 5 = 5 marks)
i. What is important to make a Good AI Machine?   1

a) Algorithm
b) Data
c) Test cases
d) All the above.

ii. The F1 score ranges from _____to _____
a) -1,0
b) 0,1
c) -1,1
d) None of the above

iii. **Assertion (A):** Computer vision is a field of artificial intelligence that enables computers to interpret and make decisions based on visual data from the world.   1

Reasoning (R): Computer vision uses algorithms to process and analyse images and videos, enabling tasks like object detection and facial recognition.
a) Both A and R are true, and R is the correct explanation for A.
b) Both A and R are true, but R is not the correct explanation for A.
c) A is true, but R is false.
d) A is false, but R is true.

iv. What do we call the process of dividing a string into component words?   1
a) Regression
b) Tokenization
c) Classification
d) Clustering

v. TF-IDF in NLP is defined as: 1
a) Term Frequency and Definite Frequency
b) Term Frequency and Indefinite Frequency
c) Term Frequency and Inverse Document Frequency
d) Term Frequency and Integrated Document Frequency

vi. Statement 1: F1 score is evaluated based on precision or recall.   1
Statement 2: When the F1 score is 0, the model accuracy is 100%
a) Both statement1 and statement 2 are correct.
b) Both statement1 and statement 2 are incorrect.
c) Statement 1 is correct but statement 2 is incorrect.
d) Statement 1 is incorrect but statement 2 is correct.

SECTION B: SUBJECTIVE TYPE QUESTIONS

Answer any 3 out of the given 5 questions on Employability Skills (2 x 3 = 6 marks)
Answer each question in 20 – 30 words.

Q. 6 Mention any two positive facial expressions which you can use in making effective communication.   **2**

Q. 7 What is the importance of setting goals in life?   **2**

Q. 8 Ravi wants to change his phone but he wants to transfer his old data for later use so suggest him the term regarding this process.   **2**

Q. 9 List two qualities of successful Entrepreneurs.   **2**

Q. 10 How can we become responsible about our own environment?   **2**

Answer any 4 out of the given 6 questions in 20 – 30 words each (2 x 4 = 8 marks)

Q. 11 What is AI Bias?   **2**

Q. 12 Rajesh wants to group students data based on the grades obtained in the examination. Which AI model should he use and why?   **2**

Q. 13 Rohan wants to access data from different sources for his new AI project. Suggest him any two ways to collect the data for his new project. Also explain Rohan about the role of data in AI project.   **2**

Q. 14 Explain the difference between grayscale and RGB images.   **2**

Q. 15 Define the following: **2**
a) Stemming
b) Lemmatization

Q. 16 Draw the confusion matrix for the following data.   **2**
the number of true positive = 80
the number of true negative 17
the number of false positive = 72
the number of false negative = 110

Answer any 3 out of the given 5 questions in 50– 80 words each (4 x 3 = 12 marks)

Q. 17 Rahul wants to pursue the AI course after class XII. His parents didn't know much about its domains. Explain them the domains of AI.   **4**

Q. 18 Explain the 4Ws problem canvas and explain each one of them briefly.   **4**

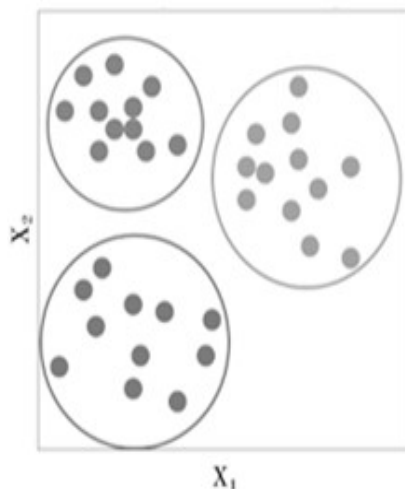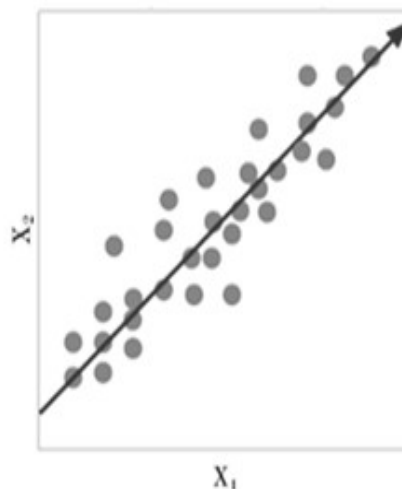Q. 19 Identify and explain the two types of the AI model in the figures given below.   **4**

Q. 20 Create a document vector table for the following documents.   **4**

Document 1: Aman and Anil are stressed
Document 2: Aman went to a therapist
Document 3: Anil went to download a health chatbot

Q. 21 The country was shaken up by a series of flood which has done a huge   **4**
damage to the people as well as the infrastructure. To address this issue, an
AI model has been created which can predict if there is a chance of a flood
or not. The confusion matrix for the same is as below: calculate Accuracy,
precision, recall and F1 score.

Confusion Matrix:		Reality	
		Yes	No
Prediction	Yes	90	10
	No	10	50

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