

**NAVODAYA VIDYALAYA SAMITI, LUCKNOW REGION**  
**ARTIFICIAL INTELLIGENCE (417)**  
**CLASS X<sup>TH</sup>**

**II PRE-BOARD EXAMINATION 2025-26**

Max. Time: 02:00 hrs.

Max. Marks: 50

**SECTION – A (OBJECTIVE TYPE QUESTIONS)**

**1. Answer any 4 out of the given 6 questions on Employability Skills.**

**4 × 1 = 4**

- i. Statement 1: Stress refers to a physical, mental or emotional strain or tension. (1)  
Statement 2: Stress can be positive if taken in the right sense and may result in effective outcomes.  
(a) Both Statement 1 and Statement 2 are correct.  
(b) Both Statement 1 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.
- ii. Asking about honest feedback, gathering personality traits, think about daily interactions are related to which of the following skills?  
(a) Responsibility            (b) Adaptability            (c) Time management            (d) Self-awareness
- iii. What is the term used when you press and hold the left mouse key and move the mouse around?  
(a) Highlighting            (b) Dragging            (c) Selecting            (d) Moving
- iv. Which of the following is a symptom of a computer virus?  
(a) Computer runs faster than normal            (b) Computer tends to restart on its own  
(c) Space on the disk is increased.            (d) All of the above
- v. Sheela decides to sell her company tyres in Sri Lanka. It does not sell and she has a loss. She apologizes to the people who work for her. She says she will plan better next time. She.....  
(a) takes responsibility for your mistakes            (b) thinks before making a decision  
(c) does not give up            (d) is creative
- vi. SMART method can be used to set goals to make you successful in your career and personal life. What does 'A' in SMART stand for?  
(a) Abrupt            (b) Accountable            (c) Achievable            (d) Admirable

**2. Answer any 5 out of given 6 questions:**

**5 × 1 = 5**

- i. \_\_\_\_\_ is a domain of AI related to data systems and processes, in which the system collects numerous data, maintains data sets and derives meaning/sense out of them.  
(a) Data Science            (b) Computer Vision            (c) NLP            (d) All of the above
- ii. The purpose of \_\_\_\_\_ is to do jobs that are either too time-consuming or boring for people.  
(a) Machine            (b) Gadgets            (c) Device            (d) None of the above
- iii. This real life application of NLP is used to provide an overview of a news item or blog post, while avoiding redundancy from multiple sources and maximising the diversity of content obtained. Which is this application?  
(a) Chatbot            (b) Virtual Assistant  
(c) Sentiment Analysis            (d) Automatic Summarisation
- iv. For Data Science, usually the data is collected in the form of tables. These tabular datasets can be stored in different formats. Which of the following formats is not used for storing data in a tabular format?  
(a) CSV            (b) Website            (c) SQL            (d) Spreadsheet

v. Bag of Words is a model which helps in extracting features out of the text which can be helpful in machine learning algorithms.

- (a) Data Science (DS) (b) Virtual Reality (VR)  
(c) Natural Language Processing (NLP) (d) Computer Vision (CV)

vi. Identify the incorrect statement(s) from the following:

- (i) Data sciences are a domain of AI related to data systems and processes, in which the system collects numerous data, maintains data sets and derives meaning/sense out of them.  
(ii) CV is a domain of AI that depicts the capability of a machine to get and analyse visual information and afterwards unpredicted some decisions about it.  
(iii) NLP enables a user to communicate with the system in his own words indirectly.  
(a) Only (i) (b) (ii) and (iii) (c) (i) and (ii) (d) Only (iii)

**3. Answer any 5 out of given 6 questions:**

**5 × 1 = 5**

i. Problem scoping the stage where \_\_\_\_\_.

- (a) the problem can be identified and goals can be set (b) the problem can be put on paper  
(c) the problem can be discussed among stakeholders (d) the problem can be understood by the people

ii. Which one of the following scenario result in a high false positive cost?

- (a) viral outbreak (b) forest fire (c) flood (d) spam filter

iii. Match Column A with Column B: (1)

**Column A**

1. Chatbots  
2. Self-driving car  
3. Snapchat filters  
4. Siri

**Column B**

- (i) CV  
(ii) NLP

(a) 1 -> (i); 2 -> (ii); 3 -> (ii); 4 -> (i)

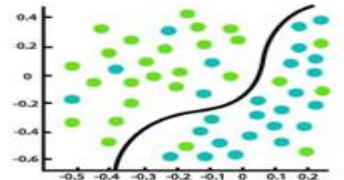
(b) 1 -> (i); 2 -> (i); 3 -> (ii); 4 -> (ii)

(c) 1 -> (ii); 2 -> (i); 3 -> (i); 4 -> (ii)

(d) 1 -> (i); 2 -> (i); 3 -> (ii); 4 -> (i)

iv. Identify the algorithm based on the given graph.

- (a) Dimensionality reduction  
(b) Classification  
(c) Clustering  
(d) Regression



v. Statement 1: To evaluate a models' performance, we need either precision or recall.

Statement 2: When the value of both Precision and Recall is 1, the F1 score is 0.

- (a) Both statement 1 and statement 2 are correct.  
(b) Both statement 1 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.

vi. Two conditions when prediction matches with the reality are true positive and \_\_\_\_\_.

**4. Answer any 5 out of the given 6 questions:**

**5 × 1 = 5**

i. \_\_\_\_\_ is especially relevant when used to provide an overview of a news item or blog post, while avoiding redundancy from multiple sources and maximizing the diversity of content obtained.

- ii. Which of the following is the sub-field of AI that is focused on enabling computers to understand and process human languages?  
 (a) Deep Learning      (b) Machine Learning      (c) NLP      (d) Data Sciences
- iii. Sam was studying about NLP. He wanted to know the term about a technique used to extract the base form of the words by removing affixes from them. Help him in identifying the term used for it.
- iv. For the whole corpus is divided into sentences. Each sentence is taken as a different data so now the whole corpus gets reduced to sentences.  
 (a) Text Regulation      (b) Sentence Segmentation      (c) Tokenisation      (d) Stemming
- v. Which of the following parameters involve fraction of positive cases that are correctly identified?  
 (a) Accuracy      (b) Precision      (c) Recall      (d) F1 score
- vi. Identify the type of chatbot with the information given below:  
 These bots are free and are easy to integrate to a messaging platform and little language processing skills required.

**5. Answer any 5 out of the given 6 questions:**

**5 × 1 = 5**

- i. Email filters, spam filters, smart assistants are the examples of:  
 (a) Pocket Assistants      (b) CV      (c) NLP      (d) Evaluation
- ii. Moving towards deploying the model in the real world, we test it in as many ways as possible. The stage of testing the models is known as \_\_\_\_\_.
- iii. What should be the value of F1 score if the model needs to have 100% accuracy?
- iv. Which of the following is an application of data science?  
 (a) Text summarization      (b) Target Advertisements  
 (c) Face lock in smartphones      (d) Email filters
- v. \_\_\_\_\_ means a picture element which is the smallest unit of information that makes up a picture.\n  
 (a) Vision      (b) Pics      (c) Pixel      (d) Piskel
- vi. Which algorithms result in two things, a vocabulary of words and frequency of the words in the corpus?  
 (a) Sentence segmentation      (b) Tokenisation      (c) Bag of words      (d) Text normalisation

**SECTION – B (SUBJECTIVE TYPE QUESTIONS)**

**Answer any 3 out of the given 5 questions on Employability Skills. (20–30 words)**

**3 × 2 = 6**

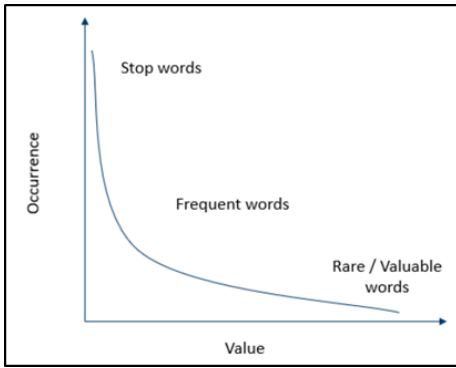
6. Explain any 4 C's of an effective communication.
7. Enlist the four steps that must have followed for effective time management.
8. List any two important functions of an entrepreneur.
9. What do you think is more important to start a new business: Creativity, Idea, Manpower, or Money? Give your suggestion.
10. Enlist any two Sustainable Development Goals which are formulated to address the problems related to water?

**Answer any 4 out of given 6 questions in 20–30 words each.**

**4 × 2 = 8**

14. Write any four examples of machines that are smart but not AI.
15. "Automatic summarization is used in NLP applications". Is the given statement correct? Justify your answer with an example.
16. Rishika works for a company wherein she was assigned the task of developing a project using AI project cycle. Help her list the stages that she must go through to develop the project.

17. Explain from the given graph, how the value and occurrence of a word are related in a corpus?



18. Identify any four unique stop words and also count the tokens in the given sentence:

*Pollution is the introduction of contaminants into the natural environment that cause adverse change. The three types of pollution are air pollution, water pollution and land pollution.*

19. Differentiate between Grayscale and RGB images.

**Answer any 3 out of given 5 questions in 50–80 words each.**

**3 × 4 = 12**

20. Vishwa is astonished to know about his sister Vaishali who is multi-talented and has excelled in academics, music, dancing, sports and painting. He was quite curious when Vaishali told him that he too possessed all these intelligences like every human being does, but only at different levels. He wondered which intelligence she was talking about. Can you help Vishwa in learning about different types of intelligences by naming and explaining any four types of intelligences?

21. Normalize the given text and comment on the vocabulary before and after the normalization:

*Raj and Vijay are best friends. They play together with other friends. Raj likes to play football but Vijay prefers to play online games. Raj wants to be a footballer. Vijay wants to become an online gamer.*

22. Explain the following terms with suitable examples:

- a) Smart Chatbot
- b) Deep Learning
- c) Reinforcement Learning
- d) Association Rule Model

23. Based on the below sentences, guess the dictionary and the document vector.

Document 1: I will study to become a doctor.

Document 2: Doctors are the best professionals.

Document 3: I know many doctors.

24. Calculate Accuracy, Precision, Recall and F1 Score for the following Confusion Matrix on SPAM

FILTERING: Also suggest which metric would not be a good evaluation parameter here and why?

Confusion Matrix on SPAM FILTERING:	Reality: 1	Reality: 0
Prediction: 1	10	55
Prediction: 0	10	25