

**BCM SCHOOL BASANT AVENUE DUGRI LUDHIANA**

**CLASS X**

**SUBJECT:ARTIFICIAL INTELLIGENCE**

**SOLUTION**

**SECTION-A: OBJECTIVE TYPE QUESTIONS**

Ans. 1.

i. (c)

II. (a)

iii.(c)

iv. Myth

v. (a)

vi. (c)

Ans. 2.

.

I (d)

ii. (a)

iii. (a)

iv a

v data exploration

vi b

Ans. 3. i. Sophia

ii. (d)

iii. True

iv. Attendance system v. (d) vi. (d)

Ans. 4. i. (a)

ii. (c)

iii. (c)

iv. (b)

v. stopwords

vi. (c)

Ans. 5. i. (d)

ii. (c)

iii. 8/23

iv. Stemming

v. (b)

vi. (d)

## SECTION-B

### SUBJECTIVE TYPE QUESTIONS

Ans. 6. The various elements of a communication cycle are :

Sender: The person beginning the communication.

Message: The information that the sender wants to convey.

Channel: The means by which the information is sent.

- Receiver: The person to whom the message is sent.
- Feedback: The receiver's acknowledgement and response to the message.

Ans. 7. A stands for Achievable.

It means breaking down big goals into smaller parts will make the goal achievable.

**Bigger Goal:** "I want to become a teacher in my school."

**Breaking it into smaller goals:** Complete higher secondary Complete Graduation  
Complete B.Ed.

Apply for jobs in the teaching field.

Ans 8 Do not run too many programs at a time Remove Temporary Files

Do a disk cleanup

Run disk defragmenter

Increase RAM.

- Ans 9 Every business idea needs to be unique or special. .
  - A person needs a lot of money to start a business.
- A person having a big business is an entrepreneur.
- Entrepreneurs are born, not made.

10. Sustainable development can actually happen only when each one of us works towards it. We have to become responsible environment citizens who can protect the environment through our own efforts. some basic ways in which people can help towards Sustainable Development Goals are:

Stop students from dropping out of school.

Study and find good jobs to take care of ourselves and our families.

Work hard and contribute to society.

Include everyone while working or playing.

Save energy by switching off lights and fans when not in use.

Buy and eat seasonal fruits and vegetables from local growers.

Repair leaking taps and pipes to avoid wasting water.

Sort and treat garbage before disposing.

11. Not all the devices which are termed as "smart" are AI-enabled. For example, a TV does not become AI-enabled if it is a smart one, it gets the power of AI when it is able to think and process on its own.

12. (a) Supervised Learning: In a supervised learning model, the dataset which is fed to the machine is labelled. For example, students get grades according to the marks they secure in examinations. These grades are labels which categorise the students according to their marks.

(b) Unsupervised Learning: An unsupervised learning model works on unlabelled dataset. The unsupervised learning models are used to identify relationships, patterns and trends out of the data which is fed into it. For example, you have a random data of 1000 dog images and you wish to understand some pattern out of it, you would feed this data into the unsupervised learning model and would train the machine on it. After training, the machine would come up with patterns which it was able to identify out of it.

Ans. 13. Open-sourced Government Portals

Reliable Websites (Kaggle)

World Organisations' open-sourced statistical websites

Ans. 14. For the last decades, computer supported medical imaging application has been a trustworthy help for physicians. It doesn't only create and analyse images, but also becomes an assistant and helps doctors with their interpretation. The application is used to read and convert 2D scan images into interactive 3D models that enable medical professionals to gain a detailed understanding of a patient's health condition.

Ans. 15. Here is the step-by-step approach to implement bag of words algorithm:

1. Text Normalisation: Collect data and pre-process it.
2. Create Dictionary: Make a list of all the unique words occurring in the corpus. (Vocabulary).
3. Create document vectors: For each document in the corpus, find out how many times the word from the unique list of words has occurred.
4. Create document vectors for all the documents.

Ans. 16. The result of comparison between the prediction and reality can be recorded in what we call the confusion matrix. The confusion matrix allows us to understand the prediction results.

Ans. 17. Humans become more and more intelligent with time as they gain experiences during their lives. For example, in elementary school, we learn about alphabets and eventually we move ahead to making words with them. As we grow, we become more and

more fluent in the language as we keep learning new words and use them in our conversations. Another example is how we learn walking. Initially a baby struggles to walk. He takes help from others while learning how to walk and once he knows it, he keeps on upgrading it by learning how to run, jump, etc.

Ans. 18. Our airlines have a problem that the current boarding system wastes four minutes of time when passengers aboard the plane. An ideal solution would be to board the plane from the sides rather than from the back to the front.

Ans. 19. Learning Based algorithms refer to those AI models where the machine learns by itself. Under the Learning Based approach, the AI model gets trained on the data fed to it and then is able to design a model which is adaptive to the change in data. For example, suppose you have a dataset comprising of 100 images of apples and bananas each. These images depict apples and bananas in various shapes and sizes. These images are then labelled as either apple or banana so that all apple images are labelled 'apple' and all the banana images have 'banana' as their label. Now, the AI model is trained with this dataset and the model is programmed in such a way that it can distinguish between an apple image and a banana image according to their features and can predict the label of any image which is fed to it as an apple or a banana. After training, the machine is now fed with testing data. Now, the testing data might not have similar images as the ones on which the model has been trained. So, the model adapts to the features on which it has been trained and accordingly predicts if the image is of an apple or banana. In this way, the machine learns by itself by adapting to the new data which is flowing in. This is the machine learning approach which introduces the dynamicity in the model.

Ans. 20. Yes, we might face any challenges if we try to teach computers how to understand and

interact in human languages. The possible difficulties are:

1. **Arrangement of the words and meaning:** The computer has to identify the different parts of a speech. Also, it may be extremely difficult for a computer to understand the meaning behind the language we use.

2. **Multiple Meanings of a word:** same word can be used in a number of different ways which according to the context of the statement changes its meaning completely.

3. **Perfect Syntax, no Meaning:** Sometimes, a statement can have a perfectly correct syntax but it does not mean anything. For example, take a look at this statement: Chickens feed extravagantly while the moon drinks tea. This statement is correct grammatically but does this make any sense? In Human language, a perfect balance of syntax and semantics is important for better understanding.

Ans. 21. TP 5 FP = 0 FN=45 TN = 50

Accuracy =  $\frac{\text{Correct Predictions}}{\text{Total Cases}} \times 100$

$\frac{(TP+TN)}{(TP+TN+FP+FN)} \times 100$

$\frac{(5+50)}{(5+50+0+45)} \times 100$

$55/100 \times 100\%$

**Accuracy = 55%**

Precision= True Positive/ All Predicted Positives

TP/ TP + FP

5/5+0=1

Recall= True Positive/ True Positive + False Negative

TP/ TP+FN = 5/5+45=5/50=0.1

F1 Score = 2 X Precision x Recall/ Precision + Recall

= 2 X 1 x 0.1/ 1+0.1

= 0.18