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SAMPLE PAPER TEST 02 FOR BOARD EXAM 2023

SUBJECT: ARTIFICIAL INTELLIGENCE (417)   **MAX. MARKS : 50**
CLASS : X   **DURATION : 2 HRS**

General Instruction:
1. Please read the instructions carefully.
2. This Question Paper consists of 21 questions in two 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):**
   i. This section has 05 questions.
   ii. Marks allotted are mentioned against each question/part.
   iii. There is no negative marking.
   iv. Do as per the instructions given.
7. **SECTION B – SUBJECTIVE TYPE QUESTIONS (26 MARKS):**
   i. This section has 16 questions.
   ii. A candidate has to do 10 questions.
   iii. Do as per the instructions given.
   iv. Marks allotted are mentioned against each question/part.

SECTION – A (OBJECTIVE TYPE QUESTIONS)

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

(i) There was a young boy who was fond of playing football and wanted to become a football player. He joined a football academy and came regularly to practice but never made it to the team. For four days, the boy didn't show up for practice. The matches had begun and his team was playing the finals. He showed up for the finals. He went up to the coach and pleaded him to let him play for the match. The coach had never seen the boy plead like this before.
The Game started and the boy played like a ball on fire. Every time he got the ball, he shot a goal. Needless to say, he was the star of the game and his team won. What type of motivation did the boy demonstrate?
(a) External
(b) Internal
(c) Both internal and external
(d) Not any specific type of motivation

(ii) Statement 1: A realistic goal is one that has no timeline or plans for execution.
Statement 2: Breaking down big goals into smaller parts will make the goal achievable.
(a) Both Statement I and Statement II are correct
(b) Both Statement I and Statement Il are incorrect
(c) Statement I is correct but Statement II is incorrect
(d) Statement I is incorrect but Statement II is correct

(iii) Here are the steps that take place when starting a computer. Rearrange the steps in the correct order.
I) Desktop appears after login
II) Login screen appears
III) Power on Self-Test (POST) starts
IV) Operating system starts
V) Welcome screen appears

(a) I) → II) → III) → IV) → V)
(b) II) → IV) → III) → V) → I)
(c) III) → IV) → V) → II) → I)
(d) III) → V) → IV) → II) → I)

(iv) Which one of the following is an example of Operating System?
(a) Microsoft Word
(b) Microsoft Windows
(c) Microsoft Excel
(d) Microsoft Access

(v) Which of the following are the qualities of successful entrepreneurs?
(a) They are confident.
(b) They take responsibility for their actions.
(c) They work hard
(d) All of the above

(vi) _____ are people who work for a person or an organization and get paid for that work.
(a) Self employed
(b) Wage employed
(c) Both of the above
(d) None of the above

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

(i) Which of the following enable machines to learn by themselves using the provided data and make accurate Predictions/ Decisions?
(a) Artificial Intelligence
(b) Deep Learning
(c) Machine Learning
(d) None of the above

(ii) Which domain of artificial intelligence deals with the interaction between computers and humans using the natural language?
(a) Computer Vision
(b) Data Science
(c) NLP
(d) None of the above

(iii) Snapchat filters use _____ and _____ to enhance your selfie with flowers, cat ears etc.
(a) machine learning and deep learning
(b) data and image processing
(c) augmented reality and machine learning
(d) NLP and computer vision

(iv) Which of the following statement is wrong?
(a) Machines become intelligent once they are trained with some information which helps them achieve their tasks.
(b) AI machines also keep updating their knowledge to optimise their output.
(c) Humans become more and more intelligent with time as they gain experiences during their lives.
(d) None of the above

(v) _____ enables software to train itself to perform tasks with vast amounts of data.
(a) Artificial Intelligence
(b) Deep Learning

(c) Machine Learning

(d) None of the above

(vi) Whenever you download an app and install, it asks you for several permissions to access your phone's data in different ways. So the data which is collected by applications is
_____

(a) ethical

(b) unethical

(c) illegal

(d) weak

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

(i) You need to _____ which will become the base of your project as it will help you in understanding what the parameters that are related to problem scoping are.

(a) Acquire Data

(b) Database

(c) Data Mining

(d) None of the above

(ii) Ananya is talking about the various stages of AI Project cycle. She is telling that, in this stage we acquire data for the project. She is talking about _____ stage of AI Project Cycle.

(a) Problem Scoping

(b) Data Exploration

(c) Data Acquisition

(d) Modelling

(iii) In a _____ learning model, the dataset which is fed to the machine is labelled.

(a) Supervised

(b) Unsupervised

(c) Reinforcement

(d) All of the above

(iv) Aman have a random data of 1000 dog images. He wish to understand some pattern out of it, so he would feed this data into the _____ and would train the machine on it.

(a) supervised learning model

(b) unsupervised learning model

(c) reinforcement learning model

(d) None of the above

(v) Templates help us to summarize all the key points into one single Template so that in future, whenever there is a need to look back at the basis of the problem, we can take a look at the _____ and understand the key elements of it.

(a) Problem Solving Template

(b) Problem Statement Template

(c) Problem Arising Template

(d) None of the above

(vi) The 4W's of Problem Scoping are:

(a) Who, What, Whose, Why

(b) Who, What, Where, Why

(c) Who, What, Where, Whose

(d) Who, What, Whom, Whose

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

(i) The term used for the whole textual data from all the documents altogether is known as _____

(ii) _____ is the process in which the affixes of words are removed and the words are converted to their base form.
(a) Stemming
(b) Stopwords
(c) Case-sensitivity
(d) All of the above

(iii) _____ is a Natural Language Processing model which helps in extracting features out of the text which can be helpful in machine learning algorithms.
(a) Bag of Words
(b) Big Words
(c) Best Words
(d) All of the above

(iv) Which of the following will help to access a specific, important piece of information from a huge knowledge base.
(a) Sentiment Analysis
(b) Text classification
(c) Virtual Assistants
(d) Automatic Summarization

(v) Under _____, every word, number and special character is considered separately and each of them is now a separate token.
(a) Sentence Segmentation
(b) Removing Stopwords, Special Characters and Numbers
(c) Converting text to a common case
(d) Tokenisation

(vi) In _____ it is important to understand that a word can have multiple meanings and the meanings fit into the statement according to the context of it.
(a) Natural Language
(b) Computer language
(c) Machine Language
(d) None of the above

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

(i) The output given by the AI machine is known as _____ (Prediction/ Reality)

(ii) _____ is used to record the result of comparison between the prediction and reality. It is not an evaluation metric but a record which can help in evaluation.

(iii) If model will simply remember the whole training set, and will therefore always predict the correct label for any point in the training set. This is known as _____.
(a) Overfitting
(b) Overriding
(c) Over remembering
(d) None of the above

(iv) _____ can be defined as the measure of balance between precision and recall.
(a) Recall

(b) Accuracy
(c) Precision
(d) F1 Score

(v) _____ is defined as the percentage of correct predictions out of all the observations.
(a) Overfitting
(b) Accuracy
(c) Confusion Matrix
(d) Data acquisition

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.

6. Ravi is using SMART method to set goals. What is SMART stands for?

7. Write the qualities of Self-Management person.

8. Difference between Hardware and Software?

9. Write four Misconceptions about Entrepreneurship.

10. What are the Promotional functions of an Entrepreneur?

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

11. How has AI changed the gaming world?

12. What is Natural Language Processing? Give an example of it.

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

14. "Automatic summarization is used in NLP applications". Is the given statement correct? Justify your answer with an example.

15. Write down the steps to implement bag of words algorithm.

16. Draw the graphical representation of Clustering AI model. Explain in brief.

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

17. Differentiate between rule-based and learning-based AI modelling approaches.

18. Manoj is amazed to learn about his sister Ananya who is multi-talented and has excelled in academics, music, dancing, sports and painting. He was quite curious when Ananya 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 Manoj in learning about different types of intelligences by naming and explaining any four types of intelligences?

19. A thief has just found a pair of ancient treasure caves. One of the caves is filled with unbelievable treasure and the other has a fire breathing monster that will eat anyone who opens that cave. One cave has a black door decorated with diamonds and the other cave has a brown door decorated with sapphires. Each of the doors has an engraved description on top. The descriptions say:

a. Black Door: Monster is here.
b. Brown Door: Only One Door speaks the truth.
Which door should the thief open?

20. The world is competitive nowadays. People face competition in even the tiniest tasks and are expected to give their best at every point in time. When people are unable to meet these expectations, they get stressed and could even go into depression. We get to hear a lot of cases where people are depressed due to reasons like peer pressure, studies, family issues, relationships, etc. and they eventually get into something that is bad for them as well as for others. So, to overcome this, Cognitive Behavioural Therapy (CBT) is considered to be one of the best methods to address stress as it is easy to implement on people and also gives good results. This therapy includes understanding the behaviour and mindset of a person in their normal life. With the help of CBT, therapists help people overcome their stress and live a happy life.

For the situation given above,
1. Write the problem statement template
2. List any two sources from which data can be collected.
3. How do we explore the data?

21. Take a look at the confusion matrix:

The Confusion		Reality	
Matrix		Yes	No
Prediction	Yes	True Positive (TP)	False Positive (FP)
	No	False Negative(FN)	True Negative (TN)

How do you calculate F1 score?

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