

SAMPLE QUESTION PAPER 1
CLASS X
ARTIFICIAL INTELLIGENCE (417)
TERM 1

Maximum Marks: 25

Time: 60 Minutes

General Instructions:

1. Please read the instructions carefully.
2. This Question Paper is divided into 3 sections, viz., Section A, Section B and Section C.
3. Section A is of 5 marks and has 6 questions on Employability Skills.
4. Section B is of 15 marks and has 20 questions on Subject-specific Skills.
5. Section C is of 5 marks and has 7 Competency-based questions.
6. Do as per the instructions given in the respective sections.
7. Marks allotted are mentioned against each section/question.
8. All questions must be attempted in the correct order.

Section A

Answer any 5 questions out of the given 6 questions.

1. Kartik is a class X student. Due to the pandemic, he is learning online. His teacher asks him to create a YouTube video in which he can make people aware of protecting themselves against the Coronavirus. He uses his own voice in the video and adds some photos and background music to enhance its effect. After sharing it with his friends, relatives and teachers, he receives their feedback. Which of the following feedback is considered descriptive? (1)
 - (i) Well done, Bro!
 - (ii) Keep up the good work!
 - (iii) Fantastic video! You did an excellent job. You chose accurate images with extremely calming background music. Your explanation of the topic with perfect pronunciation was also quite effective.
 - (iv) Nice. Very informative video!
2. Which of the following is not an imperative sentence? (1)
 - (i) Read a lot to improve your writing skills.
 - (ii) Don't shout.
 - (iii) Clean your room.
 - (iv) What kind of movies do you like?
3. Ashish had put on weight as a result of his poor eating habits and unhealthy lifestyle. He was a big foodie who never worried about his weight. Looking at his increasing weight, people started mentioning it to him. So, one day he decided to change his daily regime and started going on walk, doing yoga and followed a healthy diet. Now he maintains his weight and lives a healthy lifestyle. What type of motivation did Ashish demonstrate? (1)
 - (i) Self-awareness
 - (ii) Work independently
 - (iii) Financially independent
 - (iv) Food management
4. **Statement 1:** Self-motivation teaches us self-discipline and hard work to achieve our goals. (1)
Statement 2: Individuals experience increased anxiety and boredom when they motivate themselves.
 - (i) Both Statement 1 and Statement 2 are correct.
 - (ii) Both Statement 1 and Statement 2 are incorrect.
 - (iii) Statement 1 is correct but Statement 2 is incorrect.
 - (iv) Statement 1 is incorrect but Statement 2 is correct.
5. Given below are the steps to make a copy of folder 'D:\Myfolder' in 'C:\Documents'. Rearrange the steps in the correct order. (1)
 - (i) Right click anywhere in the folder and select Paste option from the shortcut menu or use Ctrl+V keyboard keys.
 - (ii) Select the C: drive and locate Documents folder.

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- (iii) Right click on Myfolder and select Paste option from the shortcut menu or use Ctrl+C keyboard keys.
- (iv) Select the D: drive and locate Myfolder.
- (a) (iii) -> (i) -> (ii) -> (iv)
- (b) (iv) -> (ii) -> (iii) -> (i)
- (c) (iv) -> (iii) -> (ii) -> (i)
- (d) (i) -> (ii) -> (iii) -> (iv)

6. Which of the following is not an example of Antivirus software? (1)
- (i) McAfee
 - (ii) Norton
 - (iii) Disk Cleanup
 - (iv) Kaspersky

Section B

Answer any 15 questions out of the given 20 questions.

7. Identify which of the following is incorrect about the unsupervised learning-based model. (1)
- (i) We can provide a very large data set.
 - (ii) The algorithm itself analyzes the data set and determines relationship within that data.
 - (iii) The labelled data fed with some rules by the developers.
 - (iv) It lets make predictions and improves the algorithms on its own.
8. Suppose you are going to build an AI-based system in your company to predict profit outcomes in the next 5 years. Choose the stages of AI project cycle in the correct order. (1)
- (i) Choosing the algorithm -> Evaluating the model -> data cleaning -> collecting data -> 4Ws canvas
 - (ii) 4Ws canvas -> collecting data-> data cleaning -> choosing the algorithm-> Evaluating the model
 - (iii) 4Ws canvas -> data cleaning -> collecting data -> choosing the algorithm-> Evaluating the model
 - (iv) Data cleaning -> 4Ws canvas -> choosing the algorithm -> collecting data -> Evaluating the model
9. Unscramble the letters and find which is not a virtual assistant. (1)
- (i) LZEIA
 - (ii) IIRS
 - (iii) LAEAX
 - (iv) AACTRON
10. Artificial Intelligence (AI) is a discipline that aims to create robots that are intelligent enough to do jobs that are typically performed by humans only. Identify which of the following aspects is still beyond the capabilities of artificial intelligence. (1)
- (i) Numerical ability
 - (ii) High processing power
 - (iii) Emotional intelligence
 - (iv) Speech recognition
 - (a) (i) and (iii) only
 - (b) (ii) and (iii) only
 - (c) (i), (ii) and (iii)
 - (d) Only (iii)
11. **Assertion (A):** A Neural Network helps in building predictive models based on huge data sets. (1)
Reason (R): Backpropagation is one of the techniques used to train an Artificial Neural Network.
- (i) Both A and R are correct and R is the correct explanation of A.
 - (ii) Both A and R are correct but R is NOT the correct explanation of A.
 - (iii) A is correct but R is incorrect.
 - (iv) A is incorrect but R is correct.
12. In a class, a teacher has grouped students according to their level of intelligence like Below Average, Average, Above Average and Brilliant to evaluate their academic performance. This is an example of: (1)
- (i) Regression
 - (ii) Classification
 - (iii) Clustering
 - (iv) Decision Tree

13. _____ is a technique used to solve a problem using computation processes in a structured sequence of computer-implementable instructions. (1)
- (i) Algorithm (ii) Program code
(iii) Data (iv) Data visualization
14. Kartik is a professional psychologist. He runs a clinic where he helps people with mental health issues. He has a natural capability to read human behaviour, temperament and mood, which helps him in quickly diagnosing and treating the problem. Which of the following intelligence quality does Kartik possess? (1)
- (i) Musical Intelligence (ii) Spatial Visual Intelligence
(iii) Interpersonal Intelligence (iv) Mathematical Logical Intelligence
15. A machine is called an intelligent machine only if it can: (1)
- (i) Click photos (ii) Do complex decision-making
(iii) Do speech recognition (iv) Mimic human intelligence
(a) (i) and (ii) (b) (ii) and (iii)
(c) (i), (iii) and (iv) (d) (ii), (iii) and (iv)
16. Unscramble the letters and find the correct answer. (1)
- Machine Learning + _____ = Artificial Intelligence
- (i) TRNUALA GNLAGAUE CPSISEROGN (ii) UTECPOMR ISOVNI
(iii) EPED RIGLENAN (iv) URAENL KNWTEOR
17. Life support systems and ventilators are equipped with multiple sensors that are designed to monitor and observe body signals in order to activate the device's features. For example, as soon as it senses a drop in the level of oxygen in a person's body, it turns on the artificial oxygen supply. Ventilators are an example of: (1)
- (i) Machine with emotional intelligence (ii) Artificial general intelligence
(iii) Automated machine (iv) Computer vision technology
18. Match Column A with Column B: (1)
- | Column A | Column B |
|--|---|
| 1. Regression | (i) Unsupervised Learning |
| 2. K-NN (K-Nearest Neighbour) | (ii) Supervised Learning |
| 3. Clustering | |
| 4. Decision Tree | |
| (a) 1 -> (i); 2 -> (ii); 3 -> (i); 4 -> (ii) | (b) 1 -> (ii); 2 -> (ii); 3 -> (i); 4 -> (ii) |
| (c) 1 -> (i); 2 -> (i); 3 -> (ii); 4 -> (i) | (d) 1 -> (ii); 2 -> (ii); 3 -> (ii); 4 -> (i) |
19. **Assertion (A):** A self-driving car is made up of a combination of sensors, cameras, radar and AI. (1)
- Reason (R):** The owner is liable if a self-driving car is involved in an accident.
- (i) Both A and R are correct and R is the correct explanation of A.
(ii) Both A and R are correct but R is NOT the correct explanation of A.
(iii) A is correct but R is incorrect.
(iv) A is incorrect but R is correct.
20. Which of the following is related to function of layers in a neural network? (1)
- (i) Information -> Input Layer -> Output Layer
(ii) Bias -> Output layer -> Hidden Layer
(iii) Hidden Layer -> Algorithms -> Output Layer
(iv) Input Layer -> Output Layer -> Algorithms

- (iii) Remote employees have a problem that they are getting irrelevant and unwanted mails frequently from different departments. An ideal solution is to use the communication app and email should be used only for formal work messages.
- (iv) Remote employees have a problem that they are getting irrelevant and unwanted mails frequently from different departments. An ideal solution is to write letters and post them in the letterbox.
28. (i) CSV is a simple file format used to store tabular data. (1)
- (ii) A spreadsheet is used for managing data using rows and columns.
- (iii) SQL is used for managing data stored in Database Management Systems (DBMS).

The above given files are examples of structured data. Which of the following steps are involved in converting data from various sources into digital format?

- (i) Problem Scoping (ii) Data Acquisition
- (iii) Data Modelling (iv) Data Exploration
29. A well-known news channel broadcasts information on a wide range of topics, including politics, government, foreign affairs, sports and the latest movie and television news. Reporters are in charge of gathering, evaluating and transmitting information about current events. Furthermore, the news channel permits people to submit breaking news, which is subject to verification by the channel's reporters. However, it may be difficult to distinguish between real news and fake news, which can lead to confusion among readers and threaten a news organization's reputation. Which of the following domains is used to detect fake news so that the audience has a high level of trust in the news channel? (1)
- (i) Computer Vision (ii) Matrices
- (iii) Natural Language Processing (iv) Data Science
30. An AI application that has a higher level of intelligence and is capable of understanding open-ended questions and providing assistance in finding the most relevant replies beyond the pre-scripted responses it learns over time using NLP. It is ideal for dealing with customer support concerns, resolving typical issues, aiding account administration and offering general assistance. Which of the following applications can you relate to this? (1)
- (i) Automatic Number Plate Recognition (ii) Alexa
- (iii) Smart Chatbot (iv) Spam filters
31. An AI model uses input only from the dynamic environment that does not include any labelled data. It uses a behavioural learning model and improves as it learns about the environment. As the learning agent interacts with the environment while moving from one state to another, it is rewarded for success but penalized for failure. Identify the learning model. (1)
- (i) Supervised Learning (ii) Unsupervised Learning
- (iii) Reinforcement Learning (iv) All of the above
32. There is a visual representation question in an online test where students have to observe and write two statements about it in their notebooks. The question includes an image of a park where children are playing. Some elderly people are sitting in the park. The park looks very well maintained due to greenery. The students submitted their answer sheets and the teacher found variations in the submissions of six students. (1)

Student 1:

Statement 1: The park is surrounded by only trees.

Statement 2: There are 5 girls and 4 boys.

Student 2:

Statement 1: The park is surrounded by flowers and trees.

Statement 2: An old man and women are sitting on a tree.

Student 3:

Statement 1: There are 4 girls and 3 boys in the park.

Statement 2: Two boys are sliding and one is playing on the see-saw.

Student 4:

Statement 1: There are only 2 girls playing in the park.

Statement 2: An old man and women are sitting on a bench.

Student 5:

Statement 1: The park is surrounded by trees and flowers.

Statement 2: Two girls are sitting on a bench.

Student 6:

Statement 1: Two girls are skipping and two are playing on the see-saw.

Statement 2: Two old women are playing on the see-saw.

However, the teacher found that one student had written both statements wrong while another had written both statements right. The remaining students had written one true and one false description of the image. Can you answer the following while keeping this in mind?

- (i) How many girls are there in the park?
 - (ii) How many boys are there in the park?
 - (iii) How many children are playing on the see-saw?
 - (iv) Are there any flowers or trees in the park?
 - (v) Where are the old man and women sitting?
 - (vi) How many elderly people are there in the park?
- (a) (i) 5; (ii) 4; (iii) 1; (iv) No; (v) Tree; (vi) 1
- (b) (i) 4; (ii) 3; (iii) 3; (iv) Yes; (v) Bench; (vi) 2
- (c) (i) 6; (ii) 4; (iii) 2; (iv) No; (v) Tree; (vi) 2
- (d) (i) 3; (ii) 3; (iii) 2; (iv) Yes; (v) Bench; (vi) 2

33. A school uses an AI-based system to manage the learning process by delivering customized study materials. To assign appropriate subjects to students, the system takes into consideration all the factors such as gender, race, ongoing learning, economic level, minority status and previous educational institute. However, because it ignores a fundamental aspect of learning as an ongoing process based on an individual's abilities and knowledge, this approach may lead to a student's future prospects being hidden. What is the significance of this scenario? (1)

- (i) Deep fakes
- (ii) Algorithm bias
- (iii) Safety concerns
- (iv) Explainable AI