# CBSE Class 10 AI 417 Question Paper 2024-25 with Solution

Practising Previous Year Question Papers or Sample Papers is one of the most effective ways to prepare for the CBSE Board Examination. The Class 10 Artificial Intelligence (Code 417) Previous Year Question Paper 2025 with Solution provides students with a clear understanding of the actual exam pattern, types of questions asked, and the weightage of different topics.

By solving Class 10 AI Code 417 2024-25 CBSE Board Solved Question Paper, students can familiarise themselves with the difficulty level of questions, improve their time management skills, and identify important chapters for revision. It also helps in developing the ability to write precise, well-structured answers according to the CBSE marking scheme. For students aiming for high scores, going through solutions ensures they learn the correct approach and presentation expected in the board exams. This makes previous year question papers not just a practice tool, but a complete self-assessment guide to boost confidence and performance in the final examination.

CBSE CLASS 10 ARTIFICIAL INTELLIGENCE (417) - SOLUTION

**Class 10 AI (Code 417) - Previous Year Question Paper
(Session 2024-25)**

Series GE1FH
Question Paper Code 104 Set 4

Time allowed : 2 hours
Maximum Marks : 50

General Instructions:

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):

   • 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 (1X4=4 marks)

(i) Which of the following does not help in stress management?
(a) Healthy food
(b) Sound sleep
(c) Yoga asanas
**(d) Negative thoughts**

(ii) Spam refers to

(a) Unnecessary images

(b) Temporary files

(c) Junk mails

(d) Music files

(iii) <u>**Assertion (A):**</u> **Sustainable agriculture is environment friendly.**

<u>**Reason (R):**</u> **It prevents use of chemical fertilizers to protect soil.**

(a) Both (A) and (R) are correct and (R) is correct explanation of (A)

(b) Both (A) and (R) are correct but (R) is not the correct explanation of (A)

(c) (A) is correct but (R) is not correct

(d) (A) is not correct but (R) is correct

(iv) Which of the following is not a step to build self motivation?

(a) Focusing on your goal

(b) Planning to achieve your goal

(c) Being indisciplined

(d) Finding out your strength

(v) Which of the following types of communication takes place when the number of people is small enough to communicate with each other effectively?

(a) Interpersonal communication

(b) Public communication

(c) Intrapersonal communication

(d) Small group communication

(vi) Reema has started her on restaurant. She keeps on trying new ideas to make different dishes for her customers. As an entrepreneur, Reema is:

(a) impatient

(b) creative

(c) under-confident

(d) lazy

Q.2 Answer any 5 out of the given 6 questions (1X5=5 marks)

(i) <u>**Assertion (A):**</u> **When a machine is able to mimic human traits, it is said to be artificially intelligent.**

<u>**Reason (R):**</u> **A fully automatic washing machine is artificially intelligent.**

(a) Both (A) and (R) are correct and (R) is correct explanation of (A)

(b) Both (A) and (R) are correct and (R) is not the correct explanation of (A)

(c) (A) is correct but (R) is not correct

(d) (A) is not correct but (R) is correct

(ii) Platforms such as spotify, facebook, instagram, amazon, netflix etc. shows recommendation on the basis of what you like. Which is the Technology behind this?

(a) human intelligence

(b) platform intelligence

(c) artificial intelligence

(d) application intelligence

(iii) <u>**Statement 1:**</u> **In "When" block of 4Ws canvas we find the stakeholders.**

<u>**Statement 2:**</u> **Stakeholders are the people who face a particular problem and would be benefitted with the solution.**

(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 2 is correct but Statement 1 is incorrect

(iv) Whenever we want an AI project to be able to predict and output, we need to _____.

(a) first test it using the data

(b) first train it using the data

(c) both (a) and (b)

(d) neither (a) nor (b)

(v) What does the term "image processing" refer to in Computer Vision?

(a) editing videos

(b) extracting meaningful information from images

(c) playing audio files

(d) compiling codes

(vi) A corpus contains 4 documents in which the words such as 'an, is, the' were appearing frequently. Identify the term that is used for such words.

(a) stop word

(b) rare word

(c) missing word

(d) removable word

Q.3 Answer any 5 out of the given 6 questions (1X5=5 marks)

(i) Identify the logo of an application of AI given below. It helps us to navigate to places.
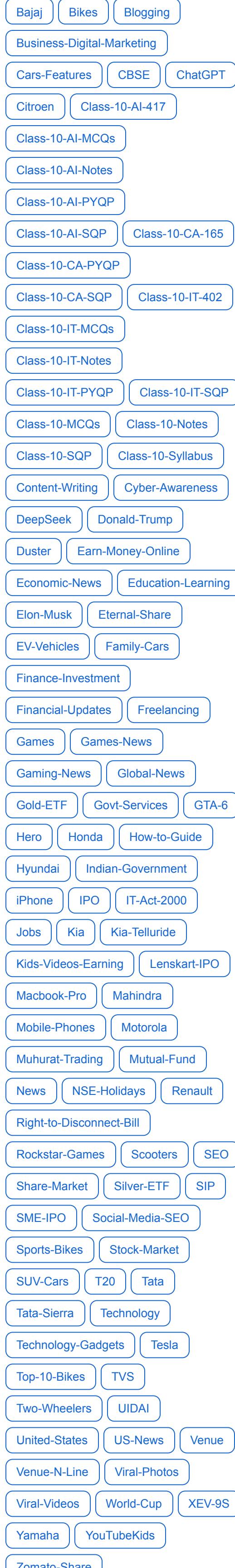
-----image

Source: uxwing.com

Ans: Google Maps

(ii) Which is the following data science application is not associated with Genetics and genomics?

(a) to understand the impact of DNA on health

(b) to analyse reactions to drugs and disease

(c) to find individual biological connection

(d) to search the house address of a relative on the internet

Talk to us?

(iii) In Computer Vision, which of the following task is used for single object?
(a) object detection
(b) classification + localization
(c) instance segmentation
(d) non-localization

(iv) It is a domain-specific language that is designed for managing data held in different kinds of DBMS (database management system). It is particularly useful in handling structured data. Which computer language is this?
(a) SQL
(b) CSV
(c) Spreadsheet
(d) TXT

(v) Which application of NLP helps to provide an overview of a news item or blog post? It also avoids redundancy from multiple sources and maximizes the diversity of content obtained.
(a) virtual assistants
(b) sentiment analysis
(c) text classification
(d) automatic summarization

(vi) Which condition of evaluation does the following diagram indicate?
Prediction: No
Reality: Yes
(a) false positive
(b) false negative
(c) true positive
(d) true negative

Q.4 Answer any 5 out of the given 6 questions (1X5=5 marks)

(i) Which of the following is the correct expansion of CSV?
(a) Comma and Space Value
(b) Comma Separated Value
(c) Control Separated Value
(d) Character Separated Values

(ii) <u>Statement 1:</u> Overfitting is not recommended for evaluation of a model.
<u>Statement 2:</u> This is because the model will simply remember the whole training set, and will therefore always predict the correct label for any point in the training set.
(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 2 is correct but Statement 1 is incorrect
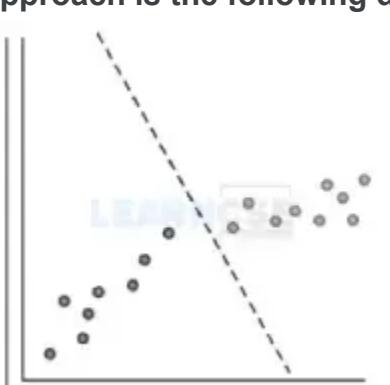
(iii) It is the one of the parameters for evaluating a models performance and defined as the percentage of true positive cases versus all the cases where the prediction is true.
Which of the following evaluation parameter is this?
(a) Precision
(b) Recall
(c) F1 score
(d) Accuracy

(iv) Which form of learning based approach is the following diagram indicate

(a) Clustering
(b) Classification
(c) Regression
(d) Dimensionally reduction

(v) Which of the following applications of NLP (natural language processing) is associated with spam filtering in emails?
(a) Virtual assistants
(b) Sentiment analysis
(c) Text classification
(d) Automatic summarization

(vi) Raghav Canton on and off any appliance remotely using an internet enable device. This is an example of
(a) Artificial intelligence (AI)
(b) Internet of things (IoT)
(c) Computer Vision (CV)
(d) Deep Learning (DL)

Q.5 Answer any 5 out of the given 6 questions (1X5=5 marks)

(i) Musical intelligence is a concept that
(a) Assesses one's ability to regulate, measure and understand numerical symbols, abstraction and logic
(b) Measures the language processing skills both in terms of understanding or implementation in writing or verbally
(c) Evaluate the ability to process information on the environment around us

(d) Describe a person's ability to recognise and creates sounds, rhythms and sound patterns

(ii) With respect to evaluation, for which of the following does the prediction and reality match?
(a) True positive and False positive
(b) True positive and True negative
(c) False positive and False negative
(d) True positive and False negative

(iii) <u>Statement 1:</u> Various search engines and e-commerce portals now have a new feature called image based search using computer vision.
**<u>Statement 2:</u> Image based search helps in finding items, people and places by giving their sounds to the system.**
(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 2 is correct but Statement 1 is incorrect

(iv) In the context of NLP, which of the following words represents a stem resulting from stamming for "Studies"?
(a) Study
(b) Stud
(c) Studi
(d) Studied

(v) Which of the following scenarios might have a high False Negative (FN) cost?
(a) Viral disease outbreak
(b) Spam
(c) Mining
(d) Image search

(vi) Which type of chat-bot has avoid functionality, is flexible and Powerful, and works on bigger database directly?
Ans: AI-powered chat-bot OR Smart/Learning Based Bot

SECTION B: SUBJECTIVE TYPE QUESTIONS

Answer any 3 out of the given 5 questions on Employability Skills (2X3=6 marks) Answer each question in 20 – 30 words.

6. Explain the importance of following a Healthy lifestyle in effectively dealing with stress. Write any one Common Factor that causes stress among the children nowadays.
Ans: Maintaining a healthy lifestyle will help you manage stress.
Eat a healthy diet, exercise regularly and get enough sleep.
Make a conscious effort to spend less time in front of a screen – television, tablet, computer and phone – and more time relaxing.
Avoid using alcohol or drugs to manage stress.
Stress won't disappear from your life and stress management needs to be ongoing.
Factors that causes stress are: Lack of knowledge, Comparison, Competition, Social Media and Cyberbullying, Family Issues etc.

7. If you are a team leader of a team of 20 people in an organisation. Mention any two methods that you will use for effective communication with your team members.
Ans: There are different methods of communication: non-verbal, verbal and visual. However, all these methods can only be effective if we follow the basic principles of professional communication skills. These can be abbreviated as 7 Cs i.e., Clear, Concise, Concrete, Correct, Coherent, Complete and Courteous.
The examples of various methods of communication are:
(i) E-mail
(ii) Face-to-face informal communication

8. Write any two task that entrepreneurs do when they run their business.
Ans: The two tasks that entrepreneurs do when they run their business are:
(i) Developing a Business Plan
(ii) Managing the business
(iii) Divide Income
(iv) Create a new method or idea or product

9. Enlist any two measures that an individual should follow to take care of his/her digital devices.
Ans: The measures that an individual should follow to take care of his/her digital devices are:
(i) Removal of unnecessary files/Spam
(ii) Use of updated Antivirus/Firewall

10. Discuss the following problems related to sustainable development. (i) water (ii) fuel
Ans: **(i) Water:**

   • Water scarcity due to wastage and overuse of water.

   • Water Pollution as people are dumping garbage in the water bodies.

(ii) Fuel:

   • We are using a lot of wood from trees as fuels and for construction of homes and furniture.

   • Over use of fuel resources

Answer any 4 out of the given 6 questions (2X4=8 marks) Answer each question in 20 – 30 words.

11. Differentiate between Computer Vision (CV) and Natural Language Processing (NLP).
Ans:

Computer Vision (CV)	Natural Language Processing (NLP)

Talk to us?

12. Define the following with respect to AI project cycle. (i) data exploration (ii) data features

Ans: **(i) data exploration:** It is the 3rd step of the AI Project Cycle to analyse the data. It is a way to discover hidden patterns, interesting insights and useful information from the collected data. You need to visualise it in some user-friendly format so that you can:

Quickly get a sense of the trends, relationships and patterns contained within the data.

Define strategy for which model to use at a later stage.

Communicate the same to others effectively.

To visualise data, we can use various types of visual representations.

Validating or verification of the collected data to analyze that the data is according to the specifications decided, free from errors and data is meeting our needs.

(ii) data features: Data features refer to the type of data you want to collect. It should be relevant and correct. Data features are individual measurable properties or characteristics of a dataset that are used to analyze and build models. These features, also called variables or attributes, provide context and information about the data For example, data features would be salary amount, increment percentage, increment period, bonus, etc.

13. One of the applications of data science is airline route planning. List any two tasks that airline companies can do using data science.

Ans: Using Data Science, the airline companies can:

(i) Predict flight delay

(ii) Whether to directly land at the destination or take a halt in between

(iii) Effectively drive customer loyalty programs

14. Give any two impacts of computer vision on medical imaging.

Ans: Computer supported medical imaging applications have 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. Computer Vision has significantly transformed the field of medical imaging, leading to substantial advancements in diagnosis, treatment, planning and patient care.

Here are the key impacts:

(i) Improved diagnostic accuracy

(ii) Enhanced image analysis

15. What is the primary difference between human language and computer language?

HUMAN LANGUAGE	COMPUTER LANGUAGE
It is communication between humans.	It is a set of instructions given to the computer.
Communication modes include speech, writing, gestures, images, videos, and use of sensory organs.	Communication mode is mainly text-based (code).
It is flexible, allows variations, and can express emotions.	It is strict, must be followed exactly, and lacks emotional expression.
Examples: English, Hindi, Punjabi, French, etc.	Examples: Python, C++, BASIC, etc.

16. You are all developing and AI model to detect fraudulent financial transaction risk. Describe false positive and false negative in this context.

Ans: False Positives are legitimate transactions that are incorrectly classified as fraudulent. This can lead to customer dissatisfaction and loss of trust/business/customers/reputation, if legitimate transactions are frequently blocked or flagged for review. A False Positive where Reality is NO but Prediction is YES, like if there is not a fraud done by a customer but the machine has predicted it wrongly as fraud.

False Negatives are fraudulent transactions that are not detected by the model and are allowed to proceed. This can result in financial loss and damage to the institution's reputation. A False Negative where Reality is YES but Prediction is NO

Answer any 3 out of the given 5 questions (4X3=12 marks) Answer each question in 50 – 80 words.

17. What do you understand by AI Bias and AI Access? Give one example of each to support your answer.

Ans: AI Bias refers to the presence of discrimination in AI systems that leads to favor certain groups over others, due to the data used to train the model. It occurs when an AI system exhibits prejudiced behavior or produces inaccurate predictions due to flawed training data, biased algorithms, or incomplete representations of reality. Sometimes, it is required to have a bias to control a situation and keep things working. We cannot expect a machine to have any biases of its own. Any bias can transfer from the developer to the machine while the algorithm is being developed. Example: Majorly, all the virtual assistants have a female voice. It is only now that some companies have understood this bias and have started giving options for male voices but since the virtual assistants came into practice, female voices are always preferred for them over any other voice.

AI Access refers to the availability to use AI technologies, tools, and resources. It ensures that AI systems are accessible to different communities and organizations, particularly marginalized or underserved groups, to avoid widening the digital divide. AI access can be both technical access (access to AI tools, platforms, and infrastructure) and social access (ensuring that AI is used equitably

Talk to us?

and benefits all sectors of society). The people who can afford AI enabled devices make the most of it while others who cannot are left behind. Because of this, a gap has emerged between these two classes of people and it gets widened with the rapid advancement of technology.

Example: Duolingo: An AI-driven language-learning app that uses machine learning algorithms to adapt lessons based on the user's skill level. This makes learning a new language more accessible to people worldwide, regardless of location or socioeconomic status.
AI-powered mobile health apps: apps like Babylon Health and Ada Health use AI to provide diagnostic advice based on symptoms.
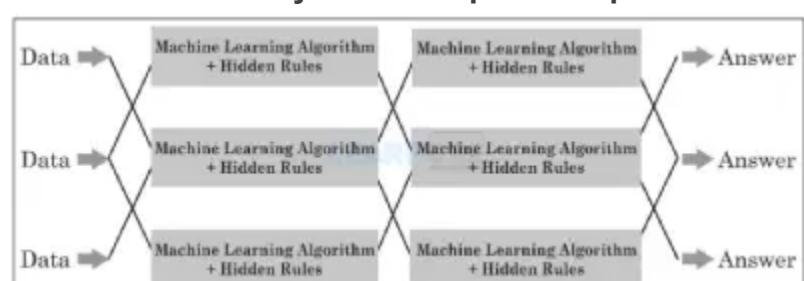
18. What is the use of problem statement template with respect to 4Ws of problem scoping? Draw a problem statement template depicting all key elements.
Ans: The Problem Statement Template helps us to summarise all the key points with respect to 4Ws (Who, What, Where, Why) into one single Template so that in future, whenever there is need to look back at the basis of the problem, we can take a look at the Problem Statement Template and understand the key elements of it.

Our	Stakeholders	Who
Has / have a problem	[Issue, problem, or need]	What
When / While	[Context or situation]	Where
An ideal solution would	[Benefit or solution for them]	Why

19. Consider the following diagram. It explain how a system of organised machine learning algorithms perform certain tasks. Identify the concept and explain its working.

Ans: Neural networks are modelled after how neurons in the human brain behave. The key advantage of neural networks is that they are able to extract data features automatically without needing the input of the programmer. A neural network is essentially a system of organizing machine learning algorithms to perform certain tasks. This is a representation of the working of neural networks. A Neural Network is divided into 3 layers and each layer is further divided into several blocks called nodes. Each node has its own machine learning algorithm to accomplish, which is then passed to the next layer.

The first layer of a Neural Network is known as the input layer. The job of an input layer is to acquire data and feed it to the Neural Network. No processing occurs at the input layer.

Next to it, are the hidden layers. Hidden layers are the layers in which the whole processing occurs. Their name essentially means that these layers are hidden and are not visible to the user. Each node of these hidden layers has its own machine learning algorithm which it executes on the data received from the input layer. The processed output is then fed to the subsequent hidden layer of the network. There can be multiple hidden layers in a neural network system and their number depends upon the complexity of the function for which the network has been configured. Also, the number of nodes in each layer can vary accordingly. The last hidden layer passes the final processed data to the output layer which then gives it to the user as the final output.

Similar to the input layer, the output layer too does not process the data which it acquires. It is meant for user-interface

20. Consider the following documents:
<u>**Document 1:**</u> **NLP is a domain of AI.**
<u>**Document 2:**</u> **NLP stands for natural language processing.**
Implement all the four steps of Bag of Words (BoW) model to create a document vector table.

Ans: **Step 1 – Text Normalisation**
<u>**Document 1:**</u> [nlp is a domain of AI]
<u>**Document 2:**</u> [nlp stands for natural language processing]

Step 2 : Creating Dictionary
nlp, is, a, domain, of, ai, stands, for, natural, language, processing

Step 3 : Create Document vectors
nlp is a domain of ai stands for natural language processing

	NLP	is	a	domain	of	AI	stands	for	natural	language	proc
Document 1	1	1	1	1	1	1	0	0	0	0	
Document 2	1	0	0	0	0	0	1	1	1	1	

Step 4 : Create Document vectors for all the documents/Term Frequency

	NLP	is	a	domain	of	AI	stands	for	natural	language	proc
Document 1	1	1	1	1	1	1	0	0	0	0	
Document 2	1	0	0	0	0	0	1	1	1	1	
Total	2	1	1	1	1	1	1	1	1	1	

21. And AI model has been developed to test specimens of blood/ urine/ cough etc. to diagnose ailments (diabetes/ liver infection etc.). The model was tested on a data set of about 630 tests and the resulting confusion matrix is as follows:

Confusion Matrix		Reality	
		Yes	No
Predicted	Yes	110	60
	No	50	410

(a) How many total cases are true negative in the above scenario?
Ans: 110 (TP), 60 (FP), 50 (FN), 410 (TN)

(b) Calculate precision, recall the F1 Score.
Ans: To find Precision:
Precision = TP / (TP + FP) = 110 / (110 + 60)
= 110 / 170 = 0.647
To find Recall:
Recall = TP / (TP + FN) = 110 / (110 + 50)
= 110 / 160 = 0.688
To find F1 score:
F1-Score = 2 * (Precision * Recall) / (Precision + Recall)
F1-Score = 2 * (0.647 * 0.688) / (0.647 + 0.688) = 0.667
Therefore, Precision = 0.647, Recall = 0.688, and F1-Score = 0.667

Download Now - Class 10 AI 417 Previous Year Question Paper (PYQP) 2024-25 with Solution

> **Year wise Pre-Board and CBSE Previous Year Question Papers with Solution – Class 10 Artificial Intelligence (Code 417)**

CBSE Class 10 AI 417 PYQP 2026-27 with Solution

CBSE Class 10 AI 417 PYQP 2025-26 with Solution

CBSE Class 10 AI 417 PYQP 2024-25 with Solution

CBSE Class 10 AI 417 PYQP 2023-24 with Solution

CBSE Class 10 AI 417 PYQP 2022-23 with Solution
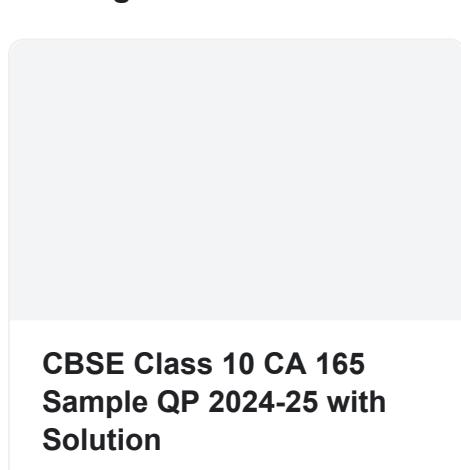
CBSE Class 10 AI 417 PYQP 2021-22 Term 2 with Solution

CBSE Class 10 AI 417 PYQP 2021-22 Term 1 with Solution
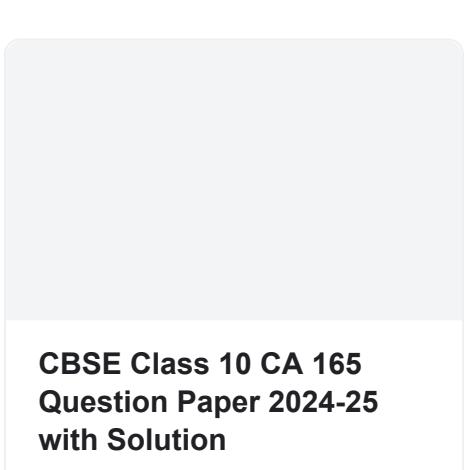
Tags: 2025, CBSE, Class-10-AI-417, Class-10-AI-PYQP

 Facebook   Twitter   🟢   📌   ✉️   ➕
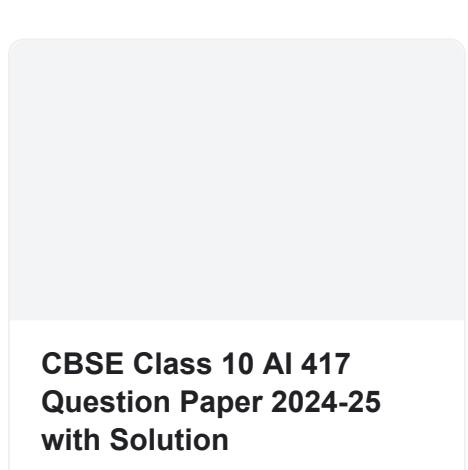
You might like ›
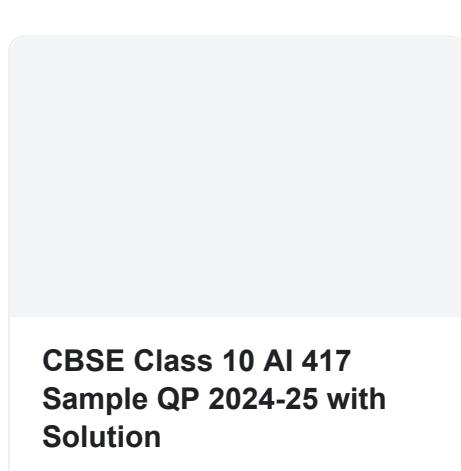
|		
CBSE Class 10 CA 165 Sample QP 2024-25 with Solution	**CBSE Class 10 CA 165 Question Paper 2024-25 with Solution**	**CBSE Class 10 AI 417 Question Paper 2024-25 with Solution**
CBSE Class 10 AI 417 Sample QP 2024-25 with Solution	**CBSE Class 10 IT 402 Sample QP 2024-25 with Solution**	**CBSE Class 10 IT 402 Question Paper 2024-25 with Solution**
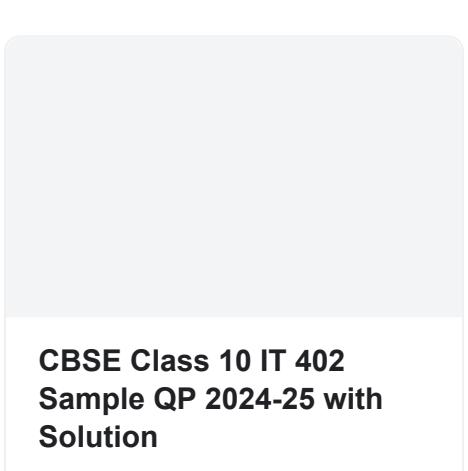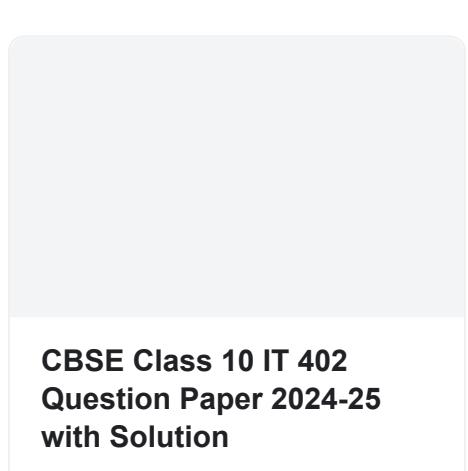
3 Comments ›

Anonymous
2/13/26, 12:36 AM

They are actually helpful

Reply

Admin ✓

2/13/26, 8:37 PM

Best wishes :)

Anonymous
2/16/26, 2:13 PM

boring

Reply

Enter Comment

‹ Previous Post   Next Post ›

LearnCSE | Get complete solutions for Class 10 & 12 Computer Science subjects with
updated syllabus, notes, MCQs, question papers & expert guidance.

2026 © Design & Developed by - LearnCSE   Home   Contact Us   Privacy Policy   Sitemap   TnC   Disclaimer

Talk to us?