

APOLLO

FBISE Computer Science Class 12

Topical workbook - Volume 2 of 2

131 questions arranged by official framework topic.

National Curriculum 2022-23; supported examinations from 2027.

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Programming Fundamentals

Domain C: Programming Fundamentals

(iv)	What is the role of a constructor in C++? Explain with an example.	2+1	OR	Briefly describe the role of system analyst in SDLC.	03
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(ix)	Write down the purpose of any two escape sequences in C++ with examples.	03	OR	What is meant by function overloading ? Give example.	1+2
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(ix)

Write down the purpose of any two escape sequences in **C++** with examples.

03

(v)

Compare **BOF** and **EOF** in file handling with example.

03

(vi)	Compare pre-test and post-test loops with examples.	03
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(vi)	Compare pre-test and post-test loops with examples.	03	OR	Differentiate between one-dimensional array and two-dimensional array with examples.	03
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(vii)	Write a C++ program that reads an alphabet and displays whether it is vowel or consonant using a switch statement.	03
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(vii)	Write a C++ program that reads an alphabet and displays whether it is vowel or consonant using a switch statement.	03	OR	Write a C++ program that stores 5 integers in an array and displays its size in memory.	03
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(viii)	Differentiate between public and private access specifiers in C++ with an example.	03	OR	What is the difference between prefix and postfix increment operators in C++? Give one example of each.	03
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(viii)	Differentiate between public and private access specifiers in C++ with an example.	03	OR	What is the difference between prefix and postfix increment operators in C++? Give one example of each.
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(x)	What is the use of a nested if statement? Elaborate with example.	03	OR	Differentiate between local and global variables in C++ with examples.	03
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(x)	What is the use of a nested if statement? Elaborate with example.	03
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(xi)	Differentiate between multi-tasking and multi-programming operating systems with examples.	03	OR	Compare variable and pointer in C++ with example.	03
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(xii)	Compare strcpy() and strcat() with examples.	03	OR	How are formal parameters different from actual parameters ? (Give three points)	03
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(xii)	Compare strcpy() and strcat() with examples.	03
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(xiii)	What is the purpose of the conditional operator ? Give example.	03	OR	What is inline function ? Give example.	03
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(xiii)	What is the purpose of the conditional operator? Give example.	03
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(xiv)	Briefly explain array size and subscript with example.	03	OR	Write down any three advantages of using function in a program.	03
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Q.4	Explain the working of a real-time operating system with examples from industries such as aviation or healthcare.	2.5 + 2.5	OR	How do inheritance and polymorphism help us understand the common features and unique behaviors of things in our daily life? Give examples.	2.5 + 2.5
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Q.5	Write a C++ program that inputs two numbers from the user and displays their sum, product, difference, quotient and remainder.	05	OR	Write a C++ program that stores marks of five students in an array and displays minimum and maximum marks.	05
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First Annual 2026 | Section A Q5 | 1 mark

A. Rows
B. Fields
C. Tables
D. Columns

First Annual 2026 | Section A Q6 | 1 mark

A. A File B. Fields
C. Database D. Record

(ix) What is Primary key?

(v) What is meant by Data Base Management System (DBMS)?

Q. 2 Answer the following parts briefly.**14x3=42**

(i)	What is meant by the term "usability" in computing systems?	03	OR	Write down any three operations of Queue.	1x3
(ii)	What is an array? Explain with an example.	2+1	OR	Write down the difference between Symmetric and Asymmetric cryptography.	1.5 + 1.5
(iii)	What is the difference between supervised learning and unsupervised learning?	1.5 + 1.5	OR	How encryption enhances security but can reduces usability? Give one example.	1.5 + 1.5
(iv)	What is the difference between a null hypothesis (H_0) and an alternative hypothesis (H_1)?	1.5 + 1.5	OR	Write any three primary risks associated with sharing private information online.	1x3
(v)	How does error handling in Human-Computer Interaction (HCI) improve user trust and satisfaction?	03	OR	What are security protocols? Give one example.	2+1
(vi)	Write down the concept of primary key. Give an example.	2+1	OR	Explain briefly overfitting and underfitting in model building using machine learning?	1.5 + 1.5
(vii)	Why is cost an important factor when recommending cybersecurity measures? Provide any three points.	1x3	OR	Briefly discuss the role of P-value in hypothesis testing with examples.	1.5 + 1.5
(viii)	How can accessibility features improve usability for visually impaired users? Give three points.	1x3	OR	What is the concept of correctness in algorithm? Give an example.	2+1
(ix)	How does a doubly linked list differ from a singly linked list? Give example.	1.5 + 1.5	OR	Write down three drawbacks of functional programming.	1x3

Q. 2 Answer the following parts briefly.

(i)	What is meant by the term "usability" in computing systems?	03
(ii)	What is an array? Explain with an example.	2+1
(iii)	What is the difference between supervised learning and unsupervised learning?	1.5 + 1.5
(iv)	What is the difference between a null hypothesis (H_0) and an alternative hypothesis (H_1)?	1.5 + 1.5
(v)	How does error handling in Human-Computer Interaction (HCI) improve user trust and satisfaction?	03
(vi)	Write down the concept of primary key. Give an example.	2+1

Q. 2 Answer the following parts briefly.**14x3=42**

(i)	What is meant by the term "usability" in computing systems?	03	OR	Write down any three operations of Queue.	1x3
(ii)	What is an array? Explain with an example.	2+1	OR	Write down the difference between Symmetric and Asymmetric cryptography.	1.5 + 1.5
(iii)	What is the difference between supervised learning and unsupervised learning?	1.5 + 1.5	OR	How encryption enhances security but can reduce usability? Give one example.	1.5 + 1.5
(iv)	What is the difference between a null hypothesis (H_0) and an alternative hypothesis (H_1)?	1.5 + 1.5	OR	Write any three primary risks associated with sharing private information online.	1x3
(v)	How does error handling in Human-Computer Interaction (HCI) improve user trust and satisfaction?	03	OR	What are security protocols? Give one example.	2+1
(vi)	Write down the concept of primary key. Give an example.	2+1	OR	Explain briefly overfitting and underfitting in model building using machine learning?	1.5 + 1.5
(vii)	Why is cost an important factor when recommending cybersecurity measures? Provide any three points.	1x3	OR	Briefly discuss the role of P-value in hypothesis testing with examples.	1.5 + 1.5
(viii)	How can accessibility features improve usability for visually impaired users? Give three points.	1x3	OR	What is the concept of correctness in algorithm? Give an example.	2+1
(ix)	How does a doubly linked list differ from a singly linked list? Give example.	1.5 + 1.5	OR	Write down three drawbacks of functional programming.	1x3
(x)	Differentiate between ransomware and spyware.	1.5 + 1.5	OR	Write down the purpose of push, pop and top operations of stack.	1x3
(xi)	What will be the time and space complexity of finding the sum of digits in a list?	03	OR	What is the difference between text and binary files? Any three points	1x3

Q.6	What is Object-Oriented Programming (OOP)? Also write down two pros and two cons of OOP.	1+2 +2
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Consider the following table and write the output of the following SQL queries:
a)SELECT * FROM employees WHERE department = 'IT';
b)SELECT AVG(salary) AS average_salary FROM employees;

1.5+
1.5

<u>E_id</u>	name	<u>D_id</u>	department	salary
1	Ali	100	IT	80000
2	Sara	101	HR	60000
3	Ahmed	102	Finance	90000
4	Ayesha	100	IT	85000
5	Rifat	103	Marketing	70000

Q.6	Design a Vehicle Management System using Object-Oriented Programming (OOP) in Python. Requirements: a) Create a Vehicle class with attributes: type, brand, model, and mileage.	2+2+1
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employee (node) using an efficient search algorithm.

- a) Search the Security department using Depth-First Search (DFS) and Breadth-First Search (BFS).
- b) Outline the sequence of node visits in the selected search method.

Q No.1. Write a Python code that uses a function to enter a number, square it, and continue reading numbers until a negative number is entered. [6 marks]

Q No.2. Write a Python program that opens an existing file, reads its contents, and prints each line one by one. [6 marks]

You are a weather scientist tracking the rainfall (in mm) for each month of the year.

Use Python list to analyze and display this data.

- (a)** Store the rainfall data for each month in a Python list and print it.

Use the following data (in mm): [50, 80, 60, 30, 120, 90, 70, 100, 85, 95, 40, 65]

- (b)** What does the following Python code prints?

```
rainfall=[50, 80, 60, 30, 120, 90, 70, 100, 85, 95, 40, 65]
print(max(rainfall))
print(min(rainfall))
```

You are a weather scientist tracking the rainfall (in mm) for each month of the year.

[3x2=6 marks]

Use Python list to analyze and display this data.

- (a)** Store the rainfall data for each month in a Python list and print it.

Use the following data (in mm): [50, 80, 60, 30, 120, 90, 70, 100, 85, 95, 40, 65]

- (b)** What does the following Python code prints?

```
rainfall=[50, 80, 60, 30, 120, 90, 70, 100, 85, 95, 40, 65]
print(max(rainfall))
print(min(rainfall))
```

- (c)** Examine the following Python program, identify any errors, and correct them.

```
rainfall=[50, 80, 60, 30, 120, 90, 70, 100, 85, 95, 40, 65]
avg= sum(rainfall)/12;
print("average rainfall = , average)
```

Q No.1.

[10 marks]

- a) Write a Python code that uses a function to enter a number, square it, and continue reading numbers until a negative number is entered. [5 marks]
- b) You are an entrepreneur who wants to start an online T-shirts store. Your goal is to create an MVP (minimum viable product) to quickly test your idea with potential customers.
 - i. Identify the most essential feature for the online store. [1 mark]
 - ii. Identify an appropriate tool and technology you will use to create the Frontend and Backend. [1 mark]
 - iii. Once the MVP is complete, gather feedback from potential users (friends, family, etc.) and plan future improvements. Design any three future improvements. [3 marks]

OR

- a) Write a Python program that opens the file and reads its content. Prints the content of the file line by line. [5 marks]

You are a weather scientist tracking the rainfall (in mm) for each month of the year. Use Python list to analyze and display this data.

Q No.2. You are a weather scientist tracking the rainfall (in mm) for each month of the year. Use Python list to analyze and display this data. **[10 marks]**

a) Store the rainfall data for each month in a Python list and print it. **[2 marks]**

Use the following data (in mm): [50, 80, 60, 30, 120, 90, 70, 100, 85, 95, 40, 65]

Q No.2. You are a weather scientist tracking the rainfall (in mm) for each month of the year. Use Python list to analyze and display this data. **[10 marks]**

a) Store the rainfall data for each month in a Python list and print it. **[2 marks]**

Use the following data (in mm): [50, 80, 60, 30, 120, 90, 70, 100, 85, 95, 40, 65]

b) What does the following Python code prints? **[1+1 marks]**

```
rainfall=[50, 80, 60, 30, 120, 90, 70, 100, 85, 95, 40, 65]
print(max(rainfall))
print(min(rainfall))
```

Q No.2. You are a weather scientist tracking the rainfall (in mm) for each month of the year. Use Python list to analyze and display this data. **[10 marks]**

a) Store the rainfall data for each month in a Python list and print it. **[2 marks]**

Use the following data (in mm): [50, 80, 60, 30, 120, 90, 70, 100, 85, 95, 40, 65]

b) What does the following Python code prints? **[1+1 marks]**

```
rainfall=[50, 80, 60, 30, 120, 90, 70, 100, 85, 95, 40, 65]
print(max(rainfall))
print(min(rainfall))
```

c) Examine the following Python program, identify any errors, and correct them. **[4 marks]**

```
rainfall=[50, 80, 60, 30, 120, 90, 70, 100, 85, 95, 40, 65]
avg= sum(rainfall)/12;
print("average rainfall = , average)
```

Q No.2. You are a weather scientist tracking the rainfall (in mm) for each month of the year. Use Python list to analyze and display this data. **[10 marks]**

a) Store the rainfall data for each month in a Python list and print it. **[2 marks]**

Use the following data (in mm): [50, 80, 60, 30, 120, 90, 70, 100, 85, 95, 40, 65]

b) What does the following Python code prints? **[1+1 marks]**

```
rainfall=[50, 80, 60, 30, 120, 90, 70, 100, 85, 95, 40, 65]
print(max(rainfall))
print(min(rainfall))
```

c) Examine the following Python program, identify any errors, and correct them. **[4 marks]**

```
rainfall=[50, 80, 60, 30, 120, 90, 70, 100, 85, 95, 40, 65]
avg= sum(rainfall)/12;
print("average rainfall = , average)
```

d) Modify the following Python code such that it prints the months with "Dry" rainfall. Also print the months with dry rainfall. **[2 marks]**

```
rainfall=[50, 80, 60, 30, 120, 90, 70, 100, 85, 95, 40, 65]
count=0
for i in range(10):
    if rainfall[i] >=70:
        count= count + 1
print("total months with greater than 70mm rainfall: ", count)
```

Q No.3. A college teacher wants to track the attendance of students in a class: **[10 marks]**

- i. Write a Python program that asks the user whether a student is present or absent. [2 marks]

If the student is "present," print "Student is present."

If the student is "absent," print "Student is absent."

- ii. Modify the above program to enter attendance for **five (05)** students. [3 marks]
- iii. After tracking the attendance of all five students, print the total number of students **present**. [3 marks]
- iv. Add a feature to calculate and print the percentage of students who are **present**. [2 marks]

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Data and Analysis

Domain D: Data and Analysis

vi.	What is a significance level (α) in hypothesis testing?	The probability of rejecting the null hypothesis when it is true	The probability of accepting the null hypothesis when it is false	The sample size used in the test	The standard deviation of the population	○ ○ ○ ○
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				when it is true	when it is false			
vii.	What will be the precision of a trained machine learning model having the following confusion matrix?			90%	75%	70%	60%	○ ○ ○ ○
		Predicted Positive	Predicted Negative					
	Actual Positive	90	10					
	Actual Negative	30	70					

OR	What is the purpose of train-test split in machine learning model building?	3
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iv.	What is feature engineering, and why is it important in machine learning?	1+2
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OR	What are the key steps involved in building a machine-learning model?	3
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What are Excel charts? List any four types.

OR	Write down any three advantages of machine learning.	1x3
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OR	Briefly discuss the concept of a test-train split in model building.	03
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Q.4	Explain the process of hypothesis formulation. Discuss the role of the null and the alternative hypothesis with suitable example.	2+3	OR	Explain.	2.5 + 2.5
				Explain the following tree traversal methods: Pre-order and Post-Order. Describe their order of operations with one example each.	

Q. 2 Answer the following parts briefly.					14x3=42
(i)	What is meant by the term "usability" in computing systems?	03	OR	Write down any three operations of Queue.	1x3
(ii)	What is an array? Explain with an example.	2+1	OR	Write down the difference between Symmetric and Asymmetric cryptography.	1.5 + 1.5
(iii)	What is the difference between supervised learning and unsupervised learning?	1.5 + 1.5	OR	How encryption enhances security but can reduces usability? Give one example.	1.5 + 1.5

Q. 2 Answer the following parts briefly.

(i)	What is meant by the term "usability" in computing systems?	03
(ii)	What is an array? Explain with an example.	2+1
(iii)	What is the difference between supervised learning and unsupervised learning?	1.5 + 1.5
(iv)	What is the difference between a null hypothesis (H_0) and an alternative hypothesis (H_1)?	1.5 + 1.5

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(i)	What is meant by the term "usability" in computing systems?	03	OR	Write down any three operations of Queue.	1x3
(ii)	What is an array? Explain with an example.	2+1	OR	Write down the difference between Symmetric and Asymmetric cryptography.	1.5 + 1.5
(iii)	What is the difference between supervised learning and unsupervised learning?	1.5 + 1.5	OR	How encryption enhances security but can reduces usability? Give one example.	1.5 + 1.5
(iv)	What is the difference between a null hypothesis (H_0) and an alternative hypothesis (H_1)?	1.5 + 1.5	OR	Write any three primary risks associated with sharing private information online.	1x3
(v)	How does error handling in Human-Computer Interaction (HCI) improve user trust and satisfaction?	03	OR	What are security protocols? Give one example.	2+1
(vi)	Write down the concept of primary key. Give an example.	2+1	OR	Explain briefly overfitting and underfitting in model building using machine learning?	1.5 + 1.5

Q. 2 Answer the following parts briefly.**14x3=42**

(i)	What is meant by the term "usability" in computing systems?	03	OR	Write down any three operations of Queue.	1x3
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(iii)	What is the difference between supervised learning and unsupervised learning?	1.5 + 1.5	OR	How encryption enhances security but can reduce usability? Give one example.	1.5 + 1.5
(iv)	What is the difference between a null hypothesis (H_0) and an alternative hypothesis (H_1)?	1.5 + 1.5	OR	Write any three primary risks associated with sharing private information online.	1x3
(v)	How does error handling in Human-Computer Interaction (HCI) improve user trust and satisfaction?	03	OR	What are security protocols? Give one example.	2+1
(vi)	Write down the concept of primary key. Give an example.	2+1	OR	Explain briefly overfitting and underfitting in model building using machine learning?	1.5 + 1.5
(vii)	Why is cost an important factor when recommending cybersecurity measures? Provide any three points.	1x3	OR	Briefly discuss the role of P-value in hypothesis testing with examples.	1.5 + 1.5

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(viii)	How can accessibility features improve usability for visually impaired users? Give three points.	1x3	OR	What is the concept of correctness in algorithm? Give an example.	2+1
(ix)	How does a doubly linked list differ from a singly linked list? Give example.	1.5 + 1.5	OR	Write down three drawbacks of functional programming.	1x3
(x)	Differentiate between ransomware and spyware.	1.5 + 1.5	OR	Write down the purpose of push, pop and top operations of stack.	1x3
(xi)	What will be the time and space complexity of finding the sum of digits in a list?	03	OR	What is the difference between text and binary files? Any three points	1x3
(xii)	How IoT can be helpful in healthcare? Briefly discuss	03	OR	How a neural network is trained using feedforward propagation?	03
(xiii)	Why are tools like Microsoft Word or Google Docs important for communicating research results?	03	OR	What is meant by data storytelling? Give one example.	2+1

Provide one example of each as well.				
Q.4	Explain the advantages and limitations of Machine Learning compared to Rule-Based algorithms. Provide at least two points for each.	2.5 + 2.5	OR	What is Deep Learning? Describe any two applications of Deep Learning.
				1+2 +2

Provide one (or) examples.		
xiii.	What is deep learning and traditional machine learning?	1.5+1.5

Q No.6.

[8 marks]

- a)** Write a python code to generate a dataset with two variables where $y=3x+4$ and plot a line chart and a box plot. [2+2 marks]
- b)** i) You are assigned to explore the reasons behind students' preferences for online learning compared to in-person learning. What kind of questions would you ask in your interview to gather qualitative data on students' learning preferences (any four questions)? [2 marks]

Q No.6.

[8 marks]

- a)** Write a python code to generate a dataset with two variables where $y=3x+4$ and plot a line chart and a box plot. [2+2 marks]
- b)** i) You are assigned to explore the reasons behind students' preferences for online learning compared to in-person learning. What kind of questions would you ask in your interview to gather qualitative data on students' learning preferences (any four questions)? [2 marks]
- ii) You are conducting a survey to understand students' reading habits. Distribute the survey to 50 students in your class. Design a questionnaire having at least four appropriate questions to collect data about students' reading habits with closed-ended questions. [2 marks]

APOLLO

Applications of Computer Science

Domain E: Applications of Computer Science

FBISE model paper | Section A Q1(ix) | 1 mark

			access	employees		
ix.	What actions should be taken to enhance the model's performance?	Increase the number of hidden layers in the neural network	Use blockchain for storing patient records	Limit training to only a small number of images	Avoid using labeled datasets	☐ ☐ ☐ ☐

FBISE model paper | Section A Q1(viii) | 1 mark

	negative					
viii.	Why is it essential for businesses to implement data protection policies?	To ensure all business data is kept offline	To prevent data breaches and unauthorized access	To allow unrestricted data access for all employees	To eliminate the need for user authentication	☐ ☐ ☐ ☐

FBISE model paper | Section B Q2(x) | 3 marks

x.	A university is offering online courses to students worldwide. How can cloud computing enhance accessibility and performance?	3

OR	What challenges do companies face when ensuring both data security and user privacy? (any three 03)	3
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OR	How deep learning works in robotics. Briefly discuss	03
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(xiii)	Briefly discuss the concept of block chain. Provide its one application.	2+1	OR
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OR	How is a neural network trained? Explain Feedforward and Backpropagation processes of neural network.	1+2 +2
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14x3=42

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(iii)	What is the difference between supervised learning and unsupervised learning?	1.5 + 1.5	OR	How encryption enhances security but can reduces usability? Give one example.	1.5 + 1.5
(iv)	What is the difference between a null hypothesis (H_0) and an alternative hypothesis (H_1)?	1.5 + 1.5	OR	Write any three primary risks associated with sharing private information online.	1x3

Q. 2 Answer the following parts briefly.**14x3=42**

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(v)	How does error handling in Human-Computer Interaction (HCI) improve user trust and satisfaction?	03	OR	What are security protocols? Give one example.	2+1
(vi)	Write down the concept of primary key. Give an example.	2+1	OR	Explain briefly overfitting and underfitting in model building using machine learning?	1.5 + 1.5
(vii)	Why is cost an important factor when recommending cybersecurity measures? Provide any three points.	1x3	OR	Briefly discuss the role of P-value in hypothesis testing with examples.	1.5 + 1.5
(viii)	How can accessibility features improve usability for visually impaired users? Give three points.	1x3	OR	What is the concept of correctness in algorithm? Give an example.	2+1
(ix)	How does a doubly linked list differ from a singly linked list? Give example.	1.5 + 1.5	OR	Write down three drawbacks of functional programming.	1x3
(x)	Differentiate between ransomware and spyware.	1.5 + 1.5	OR	Write down the purpose of push, pop and top operations of stack.	1x3
(xi)	What will be the time and space complexity of finding the sum of digits in a list?	03	OR	What is the difference between text and binary files? Any three points	1x3
(xii)	How IoT can be helpful in healthcare? Briefly discuss	03	OR	How a neural network is trained using feedforward propagation?	03

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(i)	What is meant by the term "usability" in computing systems?	03
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(xii)	How IoT can be helpful in healthcare? Briefly discuss	03

Q. 2 Answer the following parts briefly.

(i)	What is meant by the term "usability" in computing systems?	03
(ii)	What is an array? Explain with an example.	2+1
(iii)	What is the difference between supervised learning and unsupervised learning?	1.5 + 1.5
(iv)	What is the difference between a null hypothesis (H_0) and an alternative hypothesis (H_1)?	1.5 + 1.5
(v)	How does error handling in Human-Computer Interaction (HCI) improve user trust and satisfaction?	03
(vi)	Write down the concept of primary key. Give an example.	2+1
(vii)	Why is cost an important factor when recommending cybersecurity measures? Provide any three points.	1x3
(viii)	How can accessibility features improve usability for visually impaired users? Give three points.	1x3
(ix)	How does a doubly linked list differ from a singly linked list? Give example.	1.5 + 1.5
(x)	Differentiate between ransomware and spyware.	1.5 + 1.5
(xi)	What will be the time and space complexity of finding the sum of digits in a list?	03
(xii)	How IoT can be helpful in healthcare? Briefly discuss	03
(xiii)	Why are tools like Microsoft Word or Google Docs important for communicating research results?	03
(xiv)	What is cloud computing? Give any one application of cloud computing.	1+2

Q.5	What is Blockchain? Explain the applications of Blockchain in the banking industry and in the education sector.	1+2 +2	OR	How do Two-Factor Authentication (2FA) and Biometric Verification improve cybersecurity?	2.5 + 2.5
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Q.6	What is Object-Oriented Programming (OOP)? Also write down two pros and two cons of OOP.	1+2 +2	OR	Discuss the primary purpose of a Minimum Viable Product (MVP). How feature prioritization and scalability contribute to the success of the product? Explain.	2+3
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APOLLO

Impacts of Computing

Domain F: Impacts of Computing

FBISE model paper | Section A Q1(x) | 1 mark

x.	Which security method is commonly used to protect sensitive online transactions?	Biometric authentication	HTTP protocol	Plain text storage of passwords	Open access networks	○ ○ ○ ○
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FBISE model paper | Section B Q2(ii) OR | 3 marks

OR	What is phishing, and how can users protect themselves from phishing attacks?	1+2
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FBISE model paper | Section B Q2(iv) OR | 3 marks

OR	What is the purpose of cryptography in data security? Enlist any two (02) commonly used ciphers.	1+2
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~~Q2(v).~~		
OR	How online sharing of sensitive information can lead to identity theft? Support your answer with a real-world example.	1+2

~~Q2(xi).~~		
xi.	How can collaboration improve the design of computing applications for diverse users? Provide any three (03) reasons.	3

OR	Why are security protocols important in today's digital world? Give an example.	2+1
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OR	Differentiate between Symmetric and Asymmetric cryptography.	1.5 + 1.5
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OR	Explain Distributed Denial of Service (DDoS) and Ransomware cyberattacks that threaten the security and privacy of individuals and organizations.	2.5
	How is a neural network trained? Explain	2.5

Q. 2 Answer the following parts briefly.

14x3=42

(i)	What is meant by the term "usability" in computing systems?	03	OR	Write down any three operations of Queue.	1x3
(ii)	What is an array? Explain with an example.	2+1	OR	Write down the difference between Symmetric and Asymmetric cryptography.	1.5 + 1.5

Q. 2 Answer the following parts briefly.

14x3=42

(i)	What is meant by the term "usability" in computing systems?	03	OR	Write down any three operations of Queue.	1x3
(ii)	What is an array? Explain with an example.	2+1	OR	Write down the difference between Symmetric and Asymmetric cryptography.	1.5 + 1.5
(iii)	What is the difference between supervised learning and unsupervised learning?	1.5 + 1.5	OR	How encryption enhances security but can reduces usability? Give one example.	1.5 + 1.5
(iv)	What is the difference between a null hypothesis (H_0) and an alternative hypothesis (H_1)?	1.5 + 1.5	OR	Write any three primary risks associated with sharing private information online.	1x3
(v)	How does error handling in Human-Computer Interaction (HCI) improve user trust and satisfaction?	03	OR	What are security protocols? Give one example.	2+1

Q. 2 Answer the following parts briefly.

(i)	What is meant by the term "usability" in computing systems?	03
(ii)	What is an array? Explain with an example.	2+1
(iii)	What is the difference between supervised learning and unsupervised learning?	1.5 + 1.5
(iv)	What is the difference between a null hypothesis (H_0) and an alternative hypothesis (H_1)?	1.5 + 1.5
(v)	How does error handling in Human-Computer Interaction (HCI) improve user trust and satisfaction?	03
(vi)	Write down the concept of primary key. Give an example.	2+1
(vii)	Why is cost an important factor when recommending cybersecurity measures? Provide any three points.	1x3
(viii)	How can accessibility features improve usability for visually impaired users? Give three points.	1x3
(ix)	How does a doubly linked list differ from a singly linked list? Give example.	1.5 + 1.5
(x)	Differentiate between ransomware and spyware.	1.5 + 1.5

APOLLO

Digital Literacy

Domain G: Digital Literacy

	Sensitive online transactions.					
xi.	Which of the following is a key step in conducting an advanced online search?	Entering a single-word search term	Using Boolean operators like AND, OR, and NOT	Clicking on the first link that appears in a search engine	Relying only on social media for research	○ ○ ○ ○

			NOT	Engine		
xii.	How do digital tools enhance the communication of research findings?	They help present data visually and improve clarity	They eliminate the need for research validation	They restrict access to findings	They replace the need for critical analysis	○ ○ ○ ○

OR	A team is working on a research project and wants to visually present their conclusions. Which digital tool could they use, and why?	1+2
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xii.	How can digital tools help in effectively communicating research findings? Provide one (01) example.	2+1
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3x2

- Explain any two (02) methods they can use to evaluate the credibility of online sources.
- Give significance of any two (02) digital platforms they can use to present their findings in an interactive way.
- Why is it important to verify information before including it in research?

1) Each cell in a spreadsheet has a unique:

- | | | | |
|----|---------|----|---------|
| A. | Height | B. | Formula |
| C. | Address | D. | Colour |
- How many rows are created by Excel spreadsheet application?

First Annual 2026 | Section A Q2 | 1 mark

C. Address

2) Which of the following is a file created by Excel spreadsheet application?

A. A workbook

B. A Function

C. A Folder

D. A Formula

3) Which of the following is another name of Power Point presentations?

First Annual 2026 | Section A Q3 | 1 mark

C. A Folder

3) Which of the following is another name of Power Point presentations?

A. Designs

B. Placeholder

C. Templates

D. Slide deck

4) Which of the following keys is used to stop a slide show?

First Annual 2026 | Section A Q4 | 1 mark

C. Templates

4) Which of the following keys is used to stop a slide show?

A. Esc

B. F5

C. Shift+F5

D. Stop

5) Which of the following is not a type of graphics?

First Annual 2026 | Section A Q7 | 1 mark

C. Database

7) Which of the following graphics consists of lines and curves as drawing?

A. Bitmap Graphics

B. Vector Graphics

C. Photo Graphics

D. Geo Graphics

8) Which of the following is not a type of graphics?

First Annual 2026 | Section A Q8 | 1 mark

C. Photo Graphics

8) Which tool is used in Corel Draw for selecting and deselecting objects?

A. Bezier tool

B. Freehand tool

C. Pick tool

D. Shape tool

9) The area containing pull down menu option is called:

First Annual 2026 | Section A Q9 | 1 mark

C. Task bar

9) The area containing pull down menu option is called:

A. Title bar

B. Tool bar

C. Task bar

D. Menu bar

10) Which of the following is not a type of graphics?

(i) How does a formula work in MS Excel?

(ii) Name any five components of Excel window.

(iii) What is the purpose of shape tool in Corel Draw?

(iv) What is Corel Draw?

(vi) What is a form?

(vii) What are the functions of text box in MS Power Point?

- (vii) What are the functions of Ctrl + C in MS Power Point?
- (viii) How many types of animations are available in MS Power Point?
- (ix) What is Primary key?

- (vii) What is active cell of Excel?

(xi) What is presentation?

(xii)	How can digital tools be used to engage diverse audiences in understanding complex research topics? Give one example.	2+1	OR
	Briefly discuss the concept of block chain. Provide		

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