

APOLLO

FBISE Computer Science Class 11 Topical workbook - Volume 2 of 3

140 questions arranged by official framework topic.

National Curriculum 2022-23; supported examinations from 2027.

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Computational Thinking and Algorithms

Domain B: Computational Thinking and Algorithms

OR	Given the following pseudocode: Step 1: Initialize a variable sum with 0 Step 2: Initialize a variable i with 2 Step 3: While i is less than or equal to N Step 4: Add i to sum Step 5: Increment i by 2 Step 6: Print sum Modify the pseudocode to print the product of odd numbers from 1-30.	3
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10	9	26	4	1	8	37	5
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2. Which algorithm is most efficient for searching in a sorted list?	Linear Search	Binary Search	Quick Search	Jump Search
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7. Which of the following best represents pseudocode?	A compiled programming language	A flowchart diagram	A step-by-step textual description of an algorithm	A debugging tool
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Write pseudocode to display first 50 natural numbers.	03
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Programming Fundamentals

Domain C: Programming Fundamentals

7.	Which symbol is used to start a single-line comment in Python?	//	/* */	--	#
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11.	What is the correct syntax of a while loop in Python?	While (condition)	while condition then:	while {condition}	while condition:
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12.	Which command is used to create a Turtle Graphics screen in Python?	turtle.Screen()	turtle.screen()	turtle.create_screen()	turtle.show_screen()
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13.	In Python, how many values can a single return statement send back directly?	Only one value	Exactly two values	Exactly three values	Multiple values (as a tuple)
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14.	Which of the following keyword is used to define a function in Python?	function	define	def	func
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18.	A block of code that can be reused to perform a specific task is called?	constant	variable	function	list
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27.	A programmer uses a loop that decreases values from 10 to 1. What is the main purpose of using a negative step in the loop?	Increase the loop speed	Skip iterations	Stop the loop immediately	Execute the loop in reverse order
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36.	Which operator is used to compare if two values are equal in a condition?	=	==	!=	< >
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37.	Which statement will always execute in an if-elif-else structure if none of the conditions are met?	if	elif	else	ifelse
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38.	Which of the following is the correct way to create a list in Python?	{1, 2, 3}	(1, 2, 3)	[1, 2, 3]	<1, 2, 3>
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46.	What does t.penup() do in Turtle graphics	Stop drawing lines	Lifts the turtle	Start drawing lines	Turns the turtle
47.	What will the output of the following code be? numbers=[] for i in range(1,4):	[1,2,3]	[0,1,2]	[1,2,3,4]	[2,3,4]

47.	What will the output of the following code be? numbers=[] for i in range(1,4): numbers.append(i) print(numbers)	[1,2,3]	[0,1,2]	[1,2,3,4]	[2,3,4]
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48.	What is the output of the following code: def greet() print("Hello!") greet()	Nothing happens	Hello!	Error	greet
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54.	What will be the output? count = 0 for i in range(3): count += 2 print(count)	3	6	7	10
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55.	What will be the output? ips = ["A", "B", "C"] for i in range(len(ips)): print(ips[i])	ABC	"A", "B", "C"	Error	123
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56.	What will be the result of the following code? fruits=["apple", "banana", "cherry"] print("Grape" not in fruits)	True	False	Error	Grape
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STIMULUS/SITUATION/SCENARIO BASED MCQs

SCENARIO#1 (FOR QUESTIONS 57-60)	Carefully study the following Python program: num = eval(input("Enter a number: ")) total = 0 for i in range(1, num + 1): if i % 2 == 0: total = total + i
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else:
total = total - i
print("Final Value:", total)

57.	If the user enters 4, what will be the output?	0	-2	2	4
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STIMULUS/SITUATION/SCENARIO BASED MCQs

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else:
total = total - i
print("Final Value:", total)

58.	Suppose the condition is changed to if i%3 == 0: What will be the output?	multiple of 3 are added	only multiple of 3 are printed	loop executes only 3 time	syntax errors occurs
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STIMULUS/SITUATION/SCENARIO BASED MCQs

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else:
total = total - i
print("Final Value:", total)

59.	How many odd number are subtracted when num = 15?	7	8	9	10
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STIMULUS/SITUATION/SCENARIO BASED MCQs

SCENARIO#1 (FOR QUESTIONS 57-60)	Carefully study the following Python program: num = eval(input("Enter a number: ")) total = 0 for i in range(1, num + 1): if i % 2 == 0: total = total + i
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else:
total = total - i
print("Final Value:", total)

60.	Which type of error may occur if the user enters "a" as an input?	Syntax Error	Logical Error	Runtime Error	No error will occur
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Consider the list, P= [2, 5, 3, 4] , what will the statement print (max(P)) return?	2	4	5	Error in statement
	Writing detailed steps	Using a	Repeating a	Ignoring unnecessary

What will be the result of <code>x=2 4</code> Python statement?	0	2	4	6
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Assume the variables **x**, **y** and **z** where **x=4**, **y=10**, and **z=2**. What value will be stored in **result1**, **result2** and **result3** after executing following Python statements?

a) result1 = y – x

b) result2 = y // z

c) result3 = x % z

03

(v)	Determine whether these variable names are valid or invalid. Provide reasons for any invalid variable names. a) input b) your age c) marks1	03
..	Briefly explain three harmful effects of increased	

OR	Correct any three errors in the following Python code:	03
	temperature = 5; if temperature > 30: print("It's hot") elif temperature = 5: display("It's cold") else: print("The weather is mild")	

(viii)	Evaluate the following expression in Python using the proper order of operations: 2+2**3//2*4%3-1	03	OR	Compare Bus and Mesh network topologies with respect to design, scalability and reliability.	03
(ix)	Briefly explain any three guidelines to conduct a better qualitative interview.	03	OR	Write down any three key steps in developing the Minimum Viable Product.	03

	better qualitative interview.	
(x)	Write a Python program that asks the user to input name and marks. Also displays the entered name and marks.	03
	What is the importance of Digital literacy? Give three	

	devices.	
OR	What will be generated by the following Python code? country=["Pakistan", "Iran", "China"] country [2]= "Turkey" country.append("Oman") print(country)	03

Write Python statements considering turtle graphics to perform the following actions: a) Change the pen colour to blue . b) Move the turtle backward by 150 pixels . c) Rotate the turtle 90 degrees to the left .	03
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OR	Write a Python program that reads two numbers and prints the minimum number by using function.	05
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OR	Write a Python program that inputs a number and prints its multiplication table from 1 to 10 using for loop.	05
	What are information sources? Explain any four.	

Assume the variables **x**, **y** and **z** where **x=4**, **y=8**, and **z=2**. What value will be stored in **result1**, **result2** and **result3** after executing following Python statements?

- a) `result1 = x + y`
- b) `result2 = z ** 3`
- c) `result3 = y/x`

Give three reasons.	
Determine whether these variable names are valid or invalid. Provide reasons for any invalid variable names. a) range b) total marks c) counter	03
Briefly explain three guidelines regarding the use of	

OR	
Correct any three errors in the following Python code:	03
<pre>number = 0; if number > 0: print("Positive number) elif number = 0: print("Zero") else: print("Negative number")</pre>	

Evaluate the following expression in Python using the proper order of operations: 3**2-8%4+10/5*3	03
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data representation.	
Write a Python program that asks the user to input name and age also displays the entered name and age.	03
Write down three features of the Summary for data	

Write a Python program that reads three numbers and prints their product by using function.

05

05

(vii)	How does bubble sort differ from insertion sort in the way they arrange elements?	1.5 +	OR	Why is it better to use functions rather than writing one long program? Provide three reasons.	1x3
(viii)	How is indentation important in Python? Elaborate with example.	03	OR	Differentiate between analog and digital signals. (any three)	1x3

(xiii)	Suppose a list = [2, 4, 6, 8, 10]. Write a Python program to find the sum of all elements in the list.	03	OR	Evaluate the following expression in Python using the proper order of operations: 4**2-6%3+8/4*2	03
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(xiii)	Suppose a list = [2, 4, 6, 8, 10]. Write a Python program to find the sum of all elements in the list.	03	OR
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Simplify the Boolean function F, using Karnaugh map. $F = \overline{A}BC + A\overline{B}C + \overline{A}B\overline{C} + ABC$
Also construct logic circuit for the simplified expression.

OR

Develop a Python program using functions that takes two numbers from the user, and prints their product, sum and difference.

05

Q.5	Apply the binary search algorithm step by step to find the number 42 in the sorted list: [12, 18, 25, 29, 35, 42, 47, 53, 60]	05	OR	Write a Python program that takes an integer as input and prints the multiplication table of that number up to 10 using for loop.	05
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Q.2. Answer the following parts briefly.					
	Identify and correct any three errors from the following Python code segment.				
(i)	num1 = input("Enter first number") num2 = input("Enter second number") sum = num1 + num2 print("Sum = " sum	1x3	OR		

Assume the variables x, y and z where x = 4, y = 8, and z = 2. What value will be stored in result1, result2 and result3 after executing following Python statements? result1 = x + y result2 = z ** 4 result3 = y / x	1x3
How the digital divide affects human interaction and	4.5

(vii)	Which search algorithm Linear or Binary Search is more appropriate for finding a student's roll number in a sorted list? Justify your answer.	1+2	OR	Two students solve the same problem in Python: one uses global variables inside function. While the other passes values as parameters and returns the results. Which approach is better, and why?	1+2
	Evaluate the following expression using the correct			Draw OB gate with its truth table	

(xii)	How does vertical scalability differ from horizontal scalability in cloud computing? Illustrate with three differences.	1x3	OR	Write a Python function named welcome() that takes a user's name "Ali" as a parameter and prints a welcome message.	03
(xiii)	Write a Python program using a for loop to print numbers from 1 to 10.			What is the difference between	

(xiii)	Write a Python program using a for loop to print numbers from 1 to 10.	03
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06

Identify and correct any three errors from the following Python code segment. length = input("Enter length") width = input(Enter width") area = length * width print("Area of rectangle is:" area	03
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Write a Python function named add_numbers() that takes two numbers 4 and 6 as parameters and prints their sum.	03
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A Python program is written to calculate the total and average marks. In one version, all the logic is written in a single block without using functions, while in another version, the program is divided into smaller functions. Which approach is better, and why?	1+2
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Assume the variables a = 6, b = 4, and c = 2. What value will be stored in x, y, and z after executing the following Python statements? a. x = a + b b. y = x - c c. z = y * b	1x3
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03

the technology and community : energy experts.

03

OR

Write a Python program with a function to find the square and cube of a number.

06

- i.

	Compare local and global variable with example.	2
v.		

OR	Write a Python program that takes an alphabet as input and prints whether it is a vowel or a consonant.	3
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OR	Write a Python function find_max() that takes two numbers as input and returns the maximum number.	3
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xiii.	Complete the following Python code that exits when x is “Physics”. <pre>subjects = ["Computer", "English", "Physics"] for x in _____: if x == _____: _____ print(x)</pre>	3
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6. Which symbol is used for comments in Python? # // /* */ >>

12	What will be the output of the following Python code? for i in range(3): print(i)	1 2 3	0 1 2	0 1 2 3	Error
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First Annual 2026 | Section B Q2(v) | 3 marks

(v)	Differentiate between local and global variables with examples.	1.5 + 1.5	OR	Why is testing an important phase of SDLC? Give any three reasons.
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(viii)	Solve following python expression using operator precedence: 5/2+8*2 % 4-3 // 2	03	OR	Draw NOR gate and make its truth table.	1+2
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OR	Write a python program that reads two numbers and prints their product.	03
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OR	What is the importance of importing libraries in python? Give example also.	2+1
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(xiii)	Write a Python program that reads two numbers and points the smaller numbers.	03
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2.5 + 2.5	OR	Write a Python program using function to read a number and print whether it is prime or composite.	05
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OR	Write a Python program using repetition to print the sum of following series: $S = 1^2 + 3^2 + 5^2 + \dots 29^2$	05
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Data and Analysis

Domain D: Data and Analysis

FBISE model paper | Section A Q8 | 0.5 marks

8.	What is the term for data collected from every member of a defined group?	Sample	Variable	Population	Parameter
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FBISE model paper | Section A Q15 | 0.5 marks

15.	Clustering algorithms are primarily used in which branch of machine learning?	Classical learning	Professional learning	Supervised Learning	unsupervised learning
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FBISE model paper | Section A Q16 | 0.5 marks

16.	An experimental design is a tool primarily used to:	Evaluate the effect of variables under controlled conditions	Develop procedures for collecting and measuring data consistently	Identify relationships and patterns within an existing dataset	Summarize research findings for presentation and reporting
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FBISE model paper | Section A Q28 | 0.5 marks

28.	A data scientist studies how education level affects salary. In this case, salary is considered the:	Independent variable	Control variable	Dependent variable	Random variable
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FBISE model paper | Section A Q29 | 0.5 marks

29.	If two variables increase or decrease together but do not necessarily cause each other, this relationship is called:	Correlation	Regression	Causation	Classification
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FBISE model paper | Section A Q32 | 0.5 marks

32.	A research study includes participants only from one city even though the study is about the entire country. This situation may lead to:	Data accuracy	Random sampling	Selection bias	Reliable results
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FBISE model paper | Section A Q33 | 0.5 marks

33.	A pilot trains using a computer system that imitates real flight conditions. This is an example of:	Model training	Virtual reality visualization	Simulation	Real-time data processing
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34.	An infographic is used in research presentations mainly because it:	Stores large sets of raw research data for later use	Replace the need for detailed statistical analysis	Simplifies complex information using visual elements	Eliminates the need for written explanations in reports
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43.	How has technology improved data representation tools?	By making them more interactive and customizable	By removing the need for graphs and charts	By simplifying the data collection process	By replacing reports with digital content only
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SCENARIO#2 (FOR QUESTIONS 61-64)		A school introduces a digital system to improve learning and decision-making. Students use an online learning platform to submit assignments, attend virtual classes, and communicate with teachers. The school collects student performance data and evaluate it to identify weak areas. Teachers also guide students about safe internet use, privacy, and identifying fake information. The system helps administration make decisions like improving subjects where students perform poorly.			
61.	The school wants to identify the weak subjects of the students. What is this process called?	Data processing	Data analysis	Data collections	Data transmission

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64.	If a teacher uses charts to understand student performance trends, what is being applied?	Data visualization	Data collection	Data cleaning	Data analysis

SCENARIO#4 (FOR QUESTIONS 69-72)		A group of students starts an online business creating educational videos. They use social media platforms to promote content and analyze viewer data to improve their videos. They also ensure they do not use copyrighted material without permission.			
69.	Which tool is most likely used to understand which videos are most popular?	Spreadsheet software for recording viewer data	Viewer analytics tools	Video editing software	Social media content scheduler

	Parameter	Criterion		
What is the main objective of classification in Supervised learning?	To group data into clusters without labels	To predict continuous values	To reduce the dimensions of data	To assign predefined labels to input data
Which type of cloud deployment model is				

(ii)	Write down any three features of data visualization .	03
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(xiii)	Compare Parameter and Statistics with daily life example.	03	OR
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OR	Explain the differences between Correlation and Causation with examples.	05
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Differentiate between Parameter and Statistics with daily life examples.	1.5 +
Write down three differences between analog and	1.5

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Write down any three features of infographics for data representation.	03	OR	Write down any three key steps in developing the Minimum Viable Product.	03
Write a Python program that asks the user to input				

What is the difference between a population and a sample in statistics? Illustrate with example.	03
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(ii)	State the purpose of a use case when applying statistical models to real-world problems. Give an example.	2+1	OR	Step 3. En What is cl example.
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Differentiate between training a model with supervised learning and unsupervised learning, using a daily life example.	1.5 + 1.5
How do bus and star topologies differ in terms of	

Differentiate between supervised and unsupervised learning with the help of daily life example.	1.5 + 1.5
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What is the importance of using visuals (like charts or graphs) in a report? Explain any three points.	1x3
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1.5 + 1.5	OR	What is the difference between correlation and causation? Illustrate with example.	1.5 + 1.5
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i.	What is the primary purpose of using histogram in data analysis?	To show the relationship between two variables	To display the distribution of a single variable	To summarize the mean and standard deviation of data	To compare categorical data	
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xiv.	Which of the following is an example of a statistic?	The average age of 50 randomly selected employees in company	The average height of all students in a country	The true proportion of voters supporting a candidate	The average income of every citizen in a state
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xvii.	A data analyst wants to predict the price of a house based on its area (in square feet). Which type of machine learning algorithm is most suitable for this task?	Linear regression	Association	Classification	Clustering	
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ii.	What is slope and intercept for the linear relationship? Give example from daily life.	3
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OR	What is the difference between correlation and causation? Illustrate with example.	3
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1. What is the main purpose of a bar chart?	To show data in a circular chart	To display distribution of continuous data	To compare different categories of data	To calculate mean values
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1.5 +	OR	Differentiate between sampling and selection bias in data collection with example.	03
1.5 +	OR	Briefly describe any three technologies that form the foundation of IoT.	03

(vii)	Write down any three advantages of infographics for data representation.	1x3	OR	Write a simple Python program to take a number as an input and print its square.	03
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