



# Federal Board HSSC-I Examination

## Computer Science Model

### Question Paper (Curriculum 2022-23)

#### Section - A (Marks 13)

Time Allowed: 20 minutes

**Section – A is compulsory. All parts of this section are to be answered on this page and handed over to the Centre Superintendent. Deleting/overwriting is not allowed. Do not use lead pencil.**

ROLL NUMBER					
0	0	0	0	0	0
1	1	1	1	1	1
2	2	2	2	2	2
3	3	3	3	3	3
4	4	4	4	4	4
5	5	5	5	5	5
6	6	6	6	6	6
7	7	7	7	7	7
8	8	8	8	8	8
9	9	9	9	9	9

Version No.			
0	0	0	0
1	1	1	1
2	2	2	2
3	3	3	3
4	4	4	4
5	5	5	5
6	6	6	6
7	7	7	7
8	8	8	8
9	9	9	9

Candidate Sign. \_\_\_\_\_

Invigilator Sign. \_\_\_\_\_

Q1. Fill the relevant bubble against each question according to curriculum. Each part carries one mark.

Sr no.	Question	A	B	C	D	A	B	C	D
i.	What is the primary purpose of using a 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	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
ii.	Which computational thinking process involves removing unnecessary details to focus on the essential parts?	Decomposition	Pattern Recognition	Abstraction	Algorithm Design	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
iii.	Which of the following is a method used to prevent unauthorized access to a network?	Worm	Virus	Firewall	Spyware	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
iv.	What is the hexadecimal representation of the binary number <b>10101110</b> ?	6F	AE	9C	B4	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
v.	Which of the following is an example of practicing good digital citizenship?	Engaging in respectful online communication	Sharing sensitive information without permission	Plagiarizing content from the internet	Ignoring copyright laws	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
vi.	Which of the following symbol is used to identify single line comment in Python?	//	#	/*	>>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

vii.	Which of the following is an example of an efficient algorithm?	An algorithm that finds an item in a list of 1000 items by checking each one	An algorithm that prints all the numbers from 1 to 1000	An algorithm that finds an item in a sorted list of 1000 items by dividing the list in half each time	An algorithm that repeats the same task multiple times without any change	<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>
viii.	What is the primary purpose of a digital footprint?	To record all digital activities and data shared online, which can be accessed by others	To track physical steps and location	To store cookies and browsing history for future reference	To provide secure access to online banking	<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>
ix.	In the field of artificial intelligence, which subfield focuses on enabling machines to understand and interpret human language?	Computer Vision	Robotics	Machine Learning	Natural Language Processing	<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>
x.	Which of the following statements best describes the role of digital entrepreneurship?	It focuses solely on traditional business models without incorporating digital technologies	It relies on manual processes and paperwork for business operations	It avoids online marketing and sales channels	It leverages digital technologies to create innovative products, services, or business models	<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>
xi.	Which of the following is a significant environmental concern associated with the growth of data centers?	Lower water consumption	Decreased electronic waste	Higher carbon emissions due to energy consumption	Increased paper waste	<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>
xii.	What will be the output of the following statement? <b>for i in range(5): print(i)</b>	0 1 2 3 4 5	0 1 2 3 4	1 2 3 4 5	Error in statement	<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>
xiii.	Which of the following digital tools is commonly used for market research and analysis in digital entrepreneurship?	Social media platforms	Email clients	Spreadsheet software	Fax machines	<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>



# Federal Board HSSC-I Examination

## Computer Science Model Question

### Paper (Curriculum 2022-23)

Time allowed: 2.40 hours

Total Marks: 62

**Note:** Answer all parts from Section ‘B’ and all questions from Section ‘C’ on the **E-sheet**.  
Write your answers on the allotted/given spaces.

### SECTION – B (Marks 42)

Q.2	Question	Marks		Question	Marks								
i.	Correct the following Python code segments by removing errors:	3	<b>OR</b>	Given the following pseudocode:	3								
	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 50%;">Incorrect code</th> <th style="width: 50%;">Code without errors</th> </tr> </thead> <tbody> <tr> <td>num1 = 10 num2 = "5" result = num1 + num2 print(result)</td> <td></td> </tr> <tr> <td>fruits = ["Islamabad", "Karachi", "Lahore"] print(fruits [3])</td> <td></td> </tr> <tr> <td>num1 = 10 num2 = 0 result = num1 / num2 print(result)</td> <td></td> </tr> </tbody> </table>			Incorrect code		Code without errors	num1 = 10 num2 = "5" result = num1 + num2 print(result)		fruits = ["Islamabad", "Karachi", "Lahore"] print(fruits [3])		num1 = 10 num2 = 0 result = num1 / num2 print(result)		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.
	Incorrect code			Code without errors									
	num1 = 10 num2 = "5" result = num1 + num2 print(result)												
fruits = ["Islamabad", "Karachi", "Lahore"] print(fruits [3])													
num1 = 10 num2 = 0 result = num1 / num2 print(result)													
ii.	What is slope and intercept for the linear relationship? Give example from daily life.	3	<b>OR</b>	Briefly explain any three types of cloud computing models.	3								
iii.	A city healthcare provider is in the process of upgrading its software to improve patient care and enhance data security. Using this case study, recommend the most suitable implementation method of SDLC. Justify your recommendation by outlining any two considerations.	1+2	<b>OR</b>	Differentiate between supervised and unsupervised learning with daily life example.	3								
iv.	Why prototyping is important? Give any three reasons.	3	<b>OR</b>	Compare star and ring topologies with respect to scalability, reliability, and architecture.	3								
v.	Compare local and global variable with example.	2	<b>OR</b>	Consider the following examples of scenarios and identify whether the waterfall or agile model would be the most suitable for development. <ul style="list-style-type: none"> <li>a. Building construction</li> <li>b. Developing web application</li> <li>c. Digital marketing campaign</li> <li>d. Automobile production</li> <li>e. Public works projects</li> <li>f. Research projects</li> </ul>	0.5x 6								

vi.	What is an assistive technology? Also write down its two uses in daily life.	1+2	<b>OR</b>	Write down any three positive impacts of AI systems.	3																				
vii.	Categorize the following scenarios by identifying whether the linear or binary search algorithms is more appropriate choice. Also justify your answer. <table border="1" style="margin-left: 20px;"> <thead> <tr> <th>Scenario</th> <th>Search algorithm</th> <th>Reason</th> </tr> </thead> <tbody> <tr> <td>Bounded data ranges</td> <td></td> <td></td> </tr> <tr> <td>Small data sets</td> <td></td> <td></td> </tr> <tr> <td>Large, sorted data sets</td> <td></td> <td></td> </tr> </tbody> </table>	Scenario	Search algorithm	Reason	Bounded data ranges			Small data sets			Large, sorted data sets			3	<b>OR</b>	What will be displayed after executing the following statements? <table border="1" style="margin-left: 20px;"> <thead> <tr> <th>Python Statements</th> <th>Output</th> </tr> </thead> <tbody> <tr> <td>x = ["apple", "banana", "mango"] print(type(x))</td> <td></td> </tr> <tr> <td>x = "Hello World" print(type(x))</td> <td></td> </tr> <tr> <td>x = 20.5 print(type(x))</td> <td></td> </tr> </tbody> </table> <p>a.</p>	Python Statements	Output	x = ["apple", "banana", "mango"] print(type(x))		x = "Hello World" print(type(x))		x = 20.5 print(type(x))		3
Scenario	Search algorithm	Reason																							
Bounded data ranges																									
Small data sets																									
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Python Statements	Output																								
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x = "Hello World" print(type(x))																									
x = 20.5 print(type(x))																									
viii.	Evaluate the following expression using the correct order of operations in Python: $(2 + 3 ** 2 + 4 // 2 * 5 \% 3 - 1) * 2$	3	<b>OR</b>	Draw OR and NAND gates with their truth table.	1.5+ 1.5																				
ix.	Write down any three advantages of infographics.	3	<b>OR</b>	List down any three tools to create a prototype.	3																				
x.	Convert the following Boolean expression to the logic circuit: $F = XYZ + X\bar{Y}Z + \bar{X}Z$	3	<b>OR</b>	Write a Python program that takes an alphabet as input and prints whether it is a vowel or a consonant.	3																				
xi.	What are the common applications of simulation that benefit everyday activities? (Provide any three applications)	3	<b>OR</b>	What is the impact of the digital divide on connectivity? What strategies should be taken to bridge the digital divide? (Give any two)	1+2																				
xii.	How logic gates are useful in daily life? Give any three applications.	3	<b>OR</b>	What is the difference between correlation and causation? Illustrate with example.	3																				
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	<b>OR</b>	Write a Python function <b>find_max()</b> that takes two numbers as input and returns the maximum number.	3																				
xiv.	Why does feasibility study an essential step in SDLC? In what ways can a technical feasibility study help identify challenges related to the infrastructure, or compatibility requirements of a software project?	1+2	<b>OR</b>	Identify the following statements as parameter or statistics: a. The average height of all students in your entire school. b. The average height of students in your class. c. The average score in a mathematics test for students in your class at your college d. The average score in a mathematics test for all students in your city. e. The standard deviation of the ages of 50 employees randomly selected from the corporation. f. The standard deviation of the ages of all employees in a large corporation	0.5x 6																				

**SECTION – C (Marks 20)****Note:** Attempt all questions. Marks of each question are given.

(4 x 05=20)

Q. No.	Question	Marks	Question	Marks								
Q.3	Simplify the Boolean Function F, using Karnaugh Map. $F = \bar{A}\bar{B}\bar{C} + \bar{A}B\bar{C} + A\bar{B}\bar{C} + A\bar{B}C + AB\bar{C} + ABC$ Also construct logic circuit for the simplified expression.	2.5+ 2.5	<b>OR</b> Write a Python program to compute the area of circle and rectangle by using function.	5								
Q.4	What are data collection methods? Contrast any two data collection methods with respect to strength, weakness, reliability, and validity.	1+4	<b>OR</b> What is encryption? Compare Symmetric and Asymmetric encryption with respect to efficiency, security, key length, and large data handling.	1+4								
Q.5	Sort the following numbers in ascending order using Bubble sort algorithm: <table border="1" style="margin-left: 20px;"> <tr> <td>10</td><td>9</td><td>26</td><td>4</td><td>1</td><td>8</td><td>37</td><td>5</td> </tr> </table>	10	9	26	4	1	8	37	5	5	<b>OR</b> Write a Python program to count even and odd numbers in a list by using while loop.	5
10	9	26	4	1	8	37	5					
Q.6	What is blockchain technology? Explain any two technologies that enabled blockchain.	1+4	<b>OR</b> What is reliable information source? Explain any four sources of reliable information.	1+4								