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SSC-I NATIONAL BOOK FOUNDATION FBISE

COMPUTER SCIENCE TEST - UNIT 2: COMPUTATIONAL THINKING AND ALGORITHMS

Name:		Roll No.		Section:

Total Time: 2:30 Hour
Time Allowed: 150 Minutes

Total Marks: 150

PAPER OBJECTIVE
SECTION-A (MARKS 150)

NOTE: Section-A is compulsory. All parts of this section are to be answered on these pages and handed over to the center superintendent. Deleting / overwriting is not allowed. Do not use lead pencil.

Q.1 Fill the relevant bubble for each part. All parts carry one mark.

Questions	A	B	C	D	A B C D
1. A computer is a machine used to solve problems by accepting inputs, performing operations and presenting:	outputs	viruses	colours	cables	●○○○
2. Computers perform operations written by us in the form of:	dreams	algorithms and programs	rumours	poems	○●○○
3. Computers can only do what they are:	asked in speech	thinking of	programmed to do	guessing	○○●○
4. You cannot program a computer to do something that you:	know how to solve	have written down	have tested	do not know how to solve	○○○●
5. Computation is primarily based on the processor and:	printer	speaker	scanner	main memory	○○○●
6. We use computers because they work at a faster speed and are more:	expensive	accurate	human-like	colourful	○●○○
7. A challenge or situation that needs to be overcome using some action is a:	solution	problem	algorithm	flowchart	○●○○
8. A problem solved step-by-step using computation is a:	natural problem	computing problem	social problem	moral problem	○●○○
9. Computing problems usually have a well-defined input and desired properties of the:	colour	output	price	size	○●○○
10. A problem whose answer is only Yes or No is a:	search problem	decision problem	counting problem	optimization problem	○●○○
11. Checking whether a given number is odd or even is a:	search problem	decision problem	counting problem	graph problem	○●○○
12. A problem in which we look for a solution among a set of objects is a:	decision problem	counting problem	binary problem	search problem	○○○●
13. Finding a path between two cities is an example of a:	decision problem	counting problem	search problem	IPO problem	○○●○
14. In a graph, cities or points are called:	links only	nodes	loops	sheets	○●○○

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Questions	A	B	C	D	A B C D
15. In a search problem, the node from where we start is the:	goal state only	operation	initial state	link	○○●○
16. Moves that transition from one node to another in a search problem are:	states	nodes	operations	goals	○○●○
17. Problems based on the number of choices in events are:	decision problems	search problems	logic problems	counting problems	○○○●
18. If one event has A choices and another has B choices, the total number of combinations is:	A + B	A × B	A − B	A ÷ B	○●○○
19. A person has 4 shirts and 3 pants. The number of different shirt-pant pairs is:	7	1	34	12	○○○●
20. A person has 5 shirts and 4 pants. The total number of pairs is:	9	1	20	54	○○●○
21. With 4 monitors, 2 keyboards, 4 computers and 3 printers, the number of possible systems is:	13	24	96	48	○○●○
22. With 3 starters, 4 main courses and 2 desserts, the number of possible meals is:	9	12	14	24	○○○●
23. With 2 monitors, 3 keyboards and 5 mice, the total number of possible sets is:	10	15	6	30	○○○●
24. Which is the first step in solving a complex problem?	Implement the plan	Evaluate the solution	Draw the final output	Define and analyze the problem	○○○●
25. Which is the last step in solving a problem?	Evaluate	Define the problem	Decompose the problem	Select a plan	●○○○
26. Making manageable sub-problems from a problem is called:	abstraction	decomposition	evaluation	debugging	○●○○
27. In the problem-solving steps, after decomposing, we identify:	the final output	bugs	potential plans for each sub-problem	hardware	○○●○
28. After identifying potential plans, we:	select and design the best plan	implement it at once	evaluate it	ignore it	●○○○
29. Before solving a problem we must define it with clarity and specify its:	objectives	colour	price	cost only	●○○○
30. The computer works on which model?	Output-Input-Process	Input-Process-Output	Input-Output-Storage	Process-Output	○○○●
31. IPO stands for:	Input-Print-Output	Output-Process-Input	Input-Output-Process	Input-Process-Output	○●○○

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Questions	A	B	C	D	A B C D
32. Data entered into the system is the:	process	input	output	storage	○●○○
33. Operations that will be performed on the data are the:	process	input	output	storage	●○○○
34. Data that has been turned into information is the:	output	input	process	source	●○○○
35. An IPO chart represents inputs, process and outputs in:	tabular form	a poem	binary only	a circle only	●○○○
36. IPO charts are a handy tool for:	painters	farmers only	software designers	musicians	○○●○
37. In an IPO chart to compute the area of a rectangle, the inputs are:	area only	perimeter	length and width	height	○○●○
38. In an IPO chart for rectangle area, the process is:	add length and width	multiply length by width	divide length by width	subtract width from length	○●○○
39. In an IPO chart to calculate a student's average, the process is:	multiply the marks	subtract marks	add the marks and divide by their number	print marks only	○○●○
40. In an IPO chart for converting temperature from Fahrenheit to Celsius, the input is:	temperature in Celsius	temperature in Fahrenheit	area	length	○●○○
41. Using computation to solve problems requires a way of thinking called:	computational thinking	natural thinking	casual thinking	random thinking	●○○○
42. Computational thinking is a problem-solving method used to solve complex problems in a:	random manner	logical and systematic manner	careless manner	fast manner only	○●○○
43. How many main properties of computational thinking are discussed?	two	three	four	six	○○●○
44. Which is a property of computational thinking?	Compilation	Decomposition	Installation	Formatting	○●○○
45. Which is a property of computational thinking?	Printing	Typing	Abstraction	Scanning	○○●○
46. Which is a property of computational thinking?	Pattern recognition	Data entry	Scanning	Storing	●○○○
47. Which is a property of computational thinking?	Formatting	Crashing	Hacking	Algorithm design	○○○●
48. Breaking down a large problem into smaller manageable ones is:	abstraction	pattern recognition	algorithm design	decomposition	○○○●

Questions	A	B	C	D	A B C D
49. The smaller problems obtained by decomposition are called:	super-problems	sub-problems	bugs	nodes	○●○○
50. Removing unnecessary details and focusing on essential information is:	abstraction	decomposition	debugging	compiling	●○○○
51. Examining a problem for similarities or patterns is:	pattern recognition	decomposition	abstraction	testing	●○○○
52. Creating a step-by-step solution is:	algorithm design	abstraction	pattern recognition	decomposition	●○○○
53. In designing a computer game, finding where to go and how to complete the level is:	decomposition	abstraction	pattern recognition	algorithm design	●○○○
54. In game design, handling six enemies like a single enemy is an example of:	pattern recognition	decomposition	algorithm design	abstraction	●○○○
55. In game design, noting only the location of the exit and enemies is:	decomposition	algorithm design	testing	abstraction	○○○●
56. In game design, a step-by-step plan of movement is:	pattern recognition	algorithm design	abstraction	decomposition	○●○○
57. Analyzing a situation using reason to reach sensible decisions is:	logical thinking	algorithmic thinking	casual thinking	creative thinking	●○○○
58. Logical thinking is based on:	guessing	evidence and reasoning	luck	rumours	○●○○
59. Fact: cities have a mayor. Islamabad is a city. The inferred conclusion is:	Islamabad has a mayor	Islamabad has no mayor	Mayors do not exist	Cities have no facts	●○○○
60. Algorithmic thinking is a way of getting to a:	problem	solution	bug	virus	○●○○
61. Algorithmic thinking involves identifying steps and implementing them:	randomly	slowly only	hurriedly	logically and efficiently	○○○●
62. An algorithm is:	a type of hardware	a step-by-step procedure to solve a problem	a programming language only	a virus	○●○○
63. Which of the following is true about an algorithm?	It never ends	It has unclear steps	It has no output	It has a finite number of steps	○○○●
64. To find the largest of three numbers, we compare them using:	only addition	only subtraction	conditions such as A > B and A > C	only multiplication	○○●○
65. A diagrammatic representation of an algorithm is a:	IPO chart	concept map	spreadsheet	flowchart	○○○●

Questions	A	B	C	D	A B C D
66. Programmers draw flowcharts before:	buying computers	installing Windows	printing documents	writing computer programs	○○○●
67. A flowchart helps in finding and removing:	viruses	dust	cables	logical errors	○○○●
68. The start of a flowchart is represented by an:	rectangle	diamond	oval	parallelogram	○○●○
69. The end of a flowchart is represented by an:	diamond	rectangle	parallelogram	oval	○○○●
70. The input symbol in a flowchart is a:	oval	diamond	parallelogram	rectangle	○○●○
71. The output symbol in a flowchart is a:	oval	diamond	circle	parallelogram	○○○●
72. The processing symbol in a flowchart is a:	rectangle	oval	diamond	parallelogram	●○○○
73. The decision symbol in a flowchart is a:	rectangle	oval	parallelogram	diamond	○○○●
74. A flowchart starts with a:	trigger	loop	output	decision	●○○○
75. A flowchart's output must be:	the required result	blank	random	hidden	●○○○
76. The three control structures are sequence, selection and:	printing	storing	repetition	compiling	○○●○
77. A selection structure is used to:	repeat a block of code	execute steps in order only	stop a program	choose between alternatives based on a condition	○○○●
78. Printing a letter grade based on marks uses:	repetition structure	sequence only	selection structure	no structure	○○●○
79. Repeating a set of steps is called:	selection	sequence	decision	repetition	○○○●
80. Executing steps one after another is called:	selection	repetition	sequence	iteration	○○●○
81. The formula for area of a triangle is:	(base × height) / 2	base × height	base + height	base / height	●○○○
82. The area of a triangle with base 10 and height 6 is:	30	60	16	3	●○○○

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Questions	A	B	C	D	A B C D
83. The area of a rectangle with length 5 and width 4 is:	20	9	18	1	●○○○
84. Converting Fahrenheit to Celsius needs input in:	Celsius	Kelvin	metres	Fahrenheit	○○○●
85. Which is a tool for drawing flowcharts?	Microsoft Visio	Notepad	Paint	Calculator	●○○○
86. Microsoft Visio can draw flowcharts, network diagrams and:	only poems	only songs	building plans	only emails	○○●○
87. LARP is a software for designing:	photos	songs	flowcharts	videos	○○●○
88. In a concept map, concepts are represented by:	only triangles	boxes or circles	only dots	only tables	○●○○
89. In a concept map, lines or arrows are labeled with:	linking words and phrases	numbers only	colours	passwords	●○○○
90. A concept map is another way of representing:	knowledge	hardware	viruses	files	●○○○
91. Water turning into vapor from oceans and rivers is called:	evaporation	condensation	precipitation	collection	●○○○
92. Water vapor cooling to form clouds is:	evaporation	precipitation	collection	condensation	○○○●
93. Rain, snow, sleet or hail falling from clouds is:	precipitation	evaporation	condensation	collection	●○○○
94. Water gathering in rivers, lakes and oceans is:	evaporation	collection	condensation	precipitation	○●○○
95. An IPO chart for adding two numbers has the process:	input of the sum	print of the numbers	storage of the numbers	addition of the two numbers	○○○●
96. For a calculator IPO chart with two numbers and an operator, the inputs are:	only the answer	only one number	only the operator	two numbers and the operation	○○○●
97. Flowchart arrows show the:	flow of control	colour of the shapes	size of the program	name of the user	●○○○
98. In a flowchart, a decision symbol usually has:	no exits	one entry and no exits	two exits such as Yes and No	four inputs	○○●○
99. In the algorithm for the largest of three numbers, step 1 is to:	read or assign the three numbers	print the result	stop	compare nothing	●○○○

Questions	A	B	C	D	A B C D
100. An algorithm should have a clear:	colour	price	font	start and end	○○○●
101. Computational thinking is used to solve problems in:	only computer labs	only mathematics	only games	all fields of study	○○○●
102. Decomposition makes a problem:	harder to solve	impossible	easier to solve	longer to type	○○●○
103. Abstraction helps in:	adding unnecessary details	hiding the problem	stopping the project	ignoring irrelevant details	○○○●
104. Pattern recognition helps to:	reuse solutions for similar problems	ignore all similarities	delete data	slow down a solution	●○○○
105. Planning a birthday party by splitting it into food, invitations and decoration is an example of:	abstraction	decomposition	debugging	networking	○●○○
106. A map showing only roads and stations, without trees and buildings, is an example of:	decomposition	pattern recognition	abstraction	debugging	○○●○
107. Noticing that all squares have equal sides is:	decomposition	algorithm design	pattern recognition	programming	○○●○
108. A recipe with steps to cook rice is like a/an:	virus	algorithm	network	database	○●○○
109. In computing, the instructions for a computer to follow are written as a:	poem	program	story	map	○●○○
110. Programs are fed to the computer after designing the:	algorithm	keyboard	monitor	mouse	●○○○
111. A decision problem has an answer of:	Any number	A list	Yes or No	A picture	○○●○
112. Whether a given number is prime is a:	counting problem	search problem	decision problem	graph problem	○○●○
113. Does a given Java program say "yes" to an empty input? is a:	counting problem	search problem	graphics problem	decision problem	○○○●
114. Finding the shortest route between S and T in a map is a:	search problem	decision problem	counting problem	binary problem	●○○○
115. The counting principle multiplies the number of choices for:	independent events	only one event	identical events	failed events	●○○○
116. The flowchart of a program is drawn to show:	only the colours	only the input	the sequence of operations	only the hardware	○○●○

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Questions	A	B	C	D	A B C D
117. Which symbol is used for "Start" and "End" in a flowchart?	Diamond	Rectangle	Oval	Parallelogram	○○●○
118. Which flowchart symbol is used for "Area = Base × Height / 2"?	Oval	Rectangle	Diamond	Parallelogram	○●○○
119. Which flowchart symbol is used for "Is A > B?"	Diamond	Rectangle	Oval	Parallelogram	●○○○
120. Which flowchart symbol is used for "Read A, B"?	Diamond	Oval	Parallelogram	Rectangle	○○●○
121. Which flowchart symbol is used for "Print the result"?	Diamond	Oval	Rectangle	Parallelogram	○○○●
122. In a flowchart with a decision, multiple ends are:	never allowed	possible	replaced by diamonds	replaced by rectangles	○●○○
123. Which structure repeats instructions until a condition is met?	Repetition	Sequence	Selection	Abstraction	●○○○
124. The sequence structure executes instructions:	randomly	only if true	in order	never	○○●○
125. A flowchart for finding the larger of two numbers needs which structure?	Repetition only	Selection	Nothing	Hardware	○●○○
126. The process of testing and finding errors in algorithms is called:	compilation	abstraction	evaluation or debugging	decomposition	○○●○
127. Evaluation in problem solving checks whether the solution:	works and meets the objectives	is expensive	is colourful	is long	●○○○
128. Which is NOT a computing problem type in this unit?	Cooking problem	Decision problem	Search problem	Counting problem	●○○○
129. Computational thinking helps people to think:	clearly and define the problem	only in a rush	only like machines	randomly	●○○○
130. Which of these is a benefit of IPO charts?	They print documents	They store data	They compile code	They organise inputs, processes and outputs	○○○●
131. IPO charts are used before:	installing hardware	programming	downloading software	formatting a disk	○●○○
132. In an IPO chart to find the exponent of a number, the inputs are:	output only	result only	sum only	base number and power	○○○●
133. To find the average of three marks, the process is:	multiply by 3	subtract from 100	add 3	add them and divide by 3	○○○●

Questions	A	B	C	D	A B C D
134. The average of marks 60, 70 and 80 is:	210	60	70	80	○○●○
135. The temperature 212 °F in Celsius is:	212 °C	100 °C	32 °C	0 °C	○●○○
136. The perimeter of a rectangle with length 6 and width 4 is:	24	20	10	12	○●○○
137. A flowchart to convert Fahrenheit to Celsius uses the formula:	C = F + 32	C = (F − 32) × 5/9	C = F × 9/5	C = F − 100	○●○○
138. Seeing water on the floor and finding its source needs:	hardware skills	typing skills	reasoning skills	printing skills	○○●○
139. Algorithmic thinking breaks a complex problem into:	bigger parts	smaller, manageable parts	no parts	random parts	○●○○
140. Which of these is an algorithmic step?	Feel happy	Wish for answer	Check if A > B	Skip thinking	○○●○
141. In the algorithm to find the largest number, if A is the largest then we:	check again forever	stop the process	delete A	subtract A	○●○○
142. A set of rules that tells what step to do next is a/an:	virus	cable	pixel	algorithm	○○○●
143. Computational thinking helps in understanding:	how to repair monitors	how to print	how to solve problems with a computer	how to install Windows	○○●○
144. Flowcharts help communicate problem-solving methods to:	only machines	other people	nobody	only printers	○●○○
145. Concept maps are useful to:	print papers	run programs	repair computers	capture understanding of a topic	○○○●
146. Software for concept mapping or flowcharts is used to:	type code only	draw diagrams	store data only	print only	○●○○
147. The Water Cycle concept map is an example of:	a flowchart	a concept map	an IPO chart	a database	○●○○
148. A video game concept map includes gameplay mechanics, game engines, scripting and:	a soldering iron	a dictionary	an atlas	sound effects	○○○●
149. Unity and Unreal Engine are examples of:	word processors	databases	game engines	browsers	○○●○
150. Playtesting ensures that a game:	is large	is expensive	works properly and is fun	is hidden	○○●○

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