

ANSWER KEY

Written Examination for the post of **Assistant Programmer**
Date of Examination: **12th April 2026** | Maximum Marks: **120**

CANDIDATE DETAILS

Name of the Candidate	SANDEEP SAHU	Roll Number	8524567913
Category	OBC	Merit Rank	07
Marks Obtained	108 / 120	Allotment Status	SELECTED FOR INTERVIEW

DETAILED QUESTION-WISE ANSWER KEY

Q.1. Which of the following is the correct syntax to declare a pointer in C?

- (A) int *ptr;
- (B) int ptr*;
- (C) ptr int*;
- (D) *int ptr;

Answer: (A) | Candidate Response: (A) | CORRECT

Q.2. What is the size of an int data type in a typical 32-bit C compiler?

- (A) 1 byte
- (B) 2 bytes
- (C) 4 bytes
- (D) 8 bytes

Answer: (C) | Candidate Response: (C) | CORRECT

Q.3. Which header file is required for using printf() and scanf() functions in C?

- (A) stdlib.h
- (B) stdio.h
- (C) string.h
- (D) math.h

Answer: (B) | Candidate Response: (B) | CORRECT

Q.4. What will be the output of the following C code?

```
int x = 5;  
printf("%d", x++);
```

- (A) 5
- (B) 6
- (C) 4
- (D) Compiler Error

Answer: (A) | Candidate Response: (B) | INCORRECT

Q.5. Which of the following is NOT a valid storage class in C?

- (A) auto
- (B) register
- (C) static
- (D) dynamic

Answer: (D) | Candidate Response: (D) | CORRECT

Q.6. In C++, which keyword is used to define a class?

- (A) struct
- (B) class
- (C) object
- (D) define

Answer: (B) | Candidate Response: (B) | CORRECT

Q.7. What is the default access specifier for members of a class in C++?

- (A) public
- (B) private
- (C) protected
- (D) friend

Answer: (B) | Candidate Response: (B) | CORRECT

Q.8. Which operator is used for dynamic memory allocation in C++?

- (A) malloc
- (B) alloc
- (C) new
- (D) create

Answer: (C) | Candidate Response: (C) | CORRECT

Q.9. What is function overloading in C++?

- (A) Defining multiple functions with same name but different parameters
- (B) Defining a function inside another function
- (C) Calling a function recursively
- (D) Using the same function for different classes

Answer: (A) | Candidate Response: (A) | CORRECT

Q.10. Which of the following is used to terminate a loop in C/C++?

- (A) exit
- (B) break
- (C) stop
- (D) end

Answer: (B) | Candidate Response: (B) | CORRECT

Q.11. What is the output of the following code?

```
int a = 10, b = 20;
printf("%d", a > b ? a : b);
```

- (A) 10
- (B) 20
- (C) 0
- (D) 1

Answer: (B) | Candidate Response: (B) | CORRECT

Q.12. Which of the following is a correct comment in C++?

- (A) /* comment */
- (B) // comment
- (C) Both A and B
- (D) None of the above

Answer: (C) | Candidate Response: (C) | CORRECT

Q.13. What does the 'const' keyword do when applied to a variable?

- (A) Makes the variable global
- (B) Prevents modification of the variable's value
- (C) Allocates memory dynamically
- (D) Makes the variable volatile

Answer: (B) | Candidate Response: (B) | CORRECT

Q.14. In C, what is the return type of the main() function as per standard?

- (A) void
- (B) int
- (C) char
- (D) float

Answer: (B) | Candidate Response: (D) | INCORRECT

Q.15. Which of the following is true about constructors in C++?

- (A) They can return a value
- (B) They must have the same name as the class
- (C) They can be virtual
- (D) They are called only once in the program

Answer: (B) | Candidate Response: (C) | INCORRECT

Q.16. What is the purpose of the 'delete' operator in C++?

- (A) To delete a file
- (B) To deallocate memory allocated by 'new'
- (C) To remove an element from an array
- (D) To terminate a program

Answer: (B) | Candidate Response: (B) | CORRECT

Q.17. Which loop is guaranteed to execute at least once?

- (A) for loop
- (B) while loop
- (C) do-while loop
- (D) None of the above

Answer: (C) | Candidate Response: (C) | CORRECT

Q.18. What is the output of this C code?

```
int arr[] = {1, 2, 3, 4};
printf("%d", sizeof(arr)/sizeof(arr[0]));
```

- (A) 4
- (B) 8
- (C) 16
- (D) 1

Answer: (A) | Candidate Response: (B) | INCORRECT

Q.19. In C++, which concept allows a derived class to provide a specific implementation of a method already defined in its base class?

- (A) Overloading
- (B) Overriding
- (C) Encapsulation
- (D) Abstraction

Answer: (B) | Candidate Response: (B) | CORRECT

Q.20. What is a pure virtual function in C++?

- (A) A function with no body declared as virtual func() = 0;
- (B) A function that cannot be overridden
- (C) A static virtual function
- (D) A function defined only in derived classes

Answer: (A) | Candidate Response: (A) | CORRECT

Q.21. Which of the following is the entry point of a Java application?

- (A) public void main()
- (B) public static void main(String[] args)
- (C) static void main()
- (D) public main(String args)

Answer: (B) | Candidate Response: (B) | CORRECT

Q.22. In Java, which keyword is used to inherit a class?

- (A) implements
- (B) extends
- (C) inherits
- (D) super

Answer: (B) | Candidate Response: (B) | CORRECT

Q.23. What is the default value of an instance variable of type int in Java?

- (A) 0
- (B) null
- (C) undefined
- (D) 1

Answer: (A) | Candidate Response: (A) | CORRECT

Q.24. Which of the following is NOT a primitive data type in Java?

- (A) int
- (B) boolean
- (C) String
- (D) char

Answer: (C) | Candidate Response: (C) | CORRECT

Q.25. What is the purpose of the 'final' keyword when applied to a class in Java?

- (A) The class cannot be inherited
- (B) The class cannot be instantiated
- (C) All methods become static
- (D) The class is abstract

Answer: (A) | Candidate Response: (A) | CORRECT

Q.26. Which exception is thrown when an array is accessed with an illegal index in Java?

- (A) NullPointerException
- (B) ArrayIndexOutOfBoundsException
- (C) IllegalArgumentException
- (D) IndexException

Answer: (B) | Candidate Response: (B) | CORRECT

Q.27. What is method overloading in Java?

- (A) Defining methods with same name but different parameter lists
- (B) Redefining a method in a subclass
- (C) Calling a method multiple times
- (D) Using the same method for different objects

Answer: (A) | Candidate Response: (A) | CORRECT

Q.28. Which package is automatically imported in every Java program?

- (A) java.util
- (B) java.lang
- (C) java.io
- (D) java.net

Answer: (B) | Candidate Response: (B) | CORRECT

Q.29. What does the 'static' keyword mean when applied to a method?

- (A) The method belongs to the class rather than any instance
- (B) The method cannot be overridden
- (C) The method is abstract
- (D) The method runs in a separate thread

Answer: (A) | Candidate Response: (B) | INCORRECT

Q.30. Which interface must be implemented to create a thread by implementing an interface in Java?

- (A) Thread
- (B) Runnable
- (C) Callable
- (D) Executable

Answer: (B) | Candidate Response: (B) | CORRECT

Q.31. What is the output of the following Java code?

```
System.out.println(10 + 20 + "Hello");
```

- (A) 30Hello
- (B) 1020Hello
- (C) Hello30
- (D) Hello1020

Answer: (A) | Candidate Response: (A) | CORRECT

Q.32. Which collection class in Java does not allow duplicate elements?

- (A) ArrayList
- (B) LinkedList
- (C) HashSet
- (D) Vector

Answer: (C) | Candidate Response: (A) | INCORRECT

Q.33. What is the parent class of all classes in Java?

- (A) Object
- (B) Class
- (C) Main
- (D) Super

Answer: (A) | Candidate Response: (A) | CORRECT

Q.34. Which keyword is used to prevent method overriding in Java?

- (A) static
- (B) final
- (C) const
- (D) private

Answer: (B) | Candidate Response: (B) | CORRECT

Q.35. What is the size of the 'char' data type in Java?

- (A) 1 byte
- (B) 2 bytes
- (C) 4 bytes
- (D) Depends on the system

Answer: (B) | Candidate Response: (B) | CORRECT

Q.36. Which of the following is the correct way to create a list in Python?

- (A) list = (1, 2, 3)
- (B) list = [1, 2, 3]
- (C) list = {1, 2, 3}
- (D) list = <1, 2, 3>

Answer: (B) | Candidate Response: (A) | INCORRECT

Q.37. What is the output of the following Python code?

```
print(type([]))
```

- (A) <class 'list'>
- (B) <class 'tuple'>
- (C) <class 'dict'>
- (D) <class 'set'>

Answer: (A) | Candidate Response: (A) | CORRECT

Q.38. Which keyword is used to define a function in Python?

- (A) func
- (B) def
- (C) function
- (D) define

Answer: (B) | Candidate Response: (B) | CORRECT

Q.39. What is the output of this code?

```
print(2 ** 3)
```

- (A) 6
- (B) 8
- (C) 9
- (D) 5

Answer: (B) | Candidate Response: (B) | CORRECT

Q.40. Which of the following is immutable in Python?

- (A) list
- (B) dictionary
- (C) tuple
- (D) set

Answer: (C) | Candidate Response: (C) | CORRECT

Q.41. What does the 'len()' function return when applied to a string?

- (A) Number of words
- (B) Number of characters
- (C) Number of lines
- (D) Memory size

Answer: (B) | Candidate Response: (B) | CORRECT

Q.42. Which of the following is used to handle exceptions in Python?

- (A) try-except
- (B) do-catch
- (C) try-catch
- (D) error-handle

Answer: (A) | Candidate Response: (A) | CORRECT

Q.43. What is the output of the following?

```
print('Hello'[1:4])
```

- (A) Hel
- (B) ell
- (C) ello
- (D) Hell

Answer: (B) | Candidate Response: (B) | CORRECT

Q.44. Which method is used to add an element at the end of a list in Python?

- (A) add()
- (B) append()
- (C) insert()
- (D) extend()

Answer: (B) | Candidate Response: (B) | CORRECT

Q.45. What is a lambda function in Python?

- (A) A named function defined with def
- (B) An anonymous function defined with lambda
- (C) A recursive function
- (D) A function that returns None

Answer: (B) | Candidate Response: (B) | CORRECT

Q.46. Which of the following creates a dictionary in Python?

- (A) d = [1: 'a', 2: 'b']
- (B) d = {1: 'a', 2: 'b'}
- (C) d = (1: 'a', 2: 'b')
- (D) d = <1: 'a', 2: 'b'>

Answer: (B) | Candidate Response: (B) | CORRECT

Q.47. What is the output of this code?

```
x = [1, 2, 3]
```

```
print(x[-1])
```

- (A) 1
- (B) 2
- (C) 3
- (D) Error

Answer: (C) | Candidate Response: (C) | CORRECT

Q.48. Which statement is used to skip the rest of the current iteration in a loop?

- (A) break
- (B) continue
- (C) pass
- (D) skip

Answer: (B) | Candidate Response: (B) | CORRECT

Q.49. What does the 'pass' statement do in Python?

- (A) Terminates the program
- (B) Acts as a placeholder (null operation)
- (C) Skips the current iteration
- (D) Raises an exception

Answer: (B) | Candidate Response: (B) | CORRECT

Q.50. Which of the following is the correct way to open a file for reading in Python?

- (A) open('file.txt', 'r')
- (B) open('file.txt', 'w')
- (C) open('file.txt', 'a')
- (D) open('file.txt', 'x')

Answer: (A) | Candidate Response: (A) | CORRECT

Q.51. Which data structure follows the LIFO (Last In First Out) principle?

- (A) Queue
- (B) Stack
- (C) Linked List
- (D) Tree

Answer: (B) | Candidate Response: (B) | CORRECT

Q.52. Which data structure follows the FIFO (First In First Out) principle?

- (A) Stack
- (B) Queue
- (C) Tree
- (D) Graph

Answer: (B) | Candidate Response: (B) | CORRECT

Q.53. What is the time complexity of accessing an element in an array by index?

- (A) $O(n)$
- (B) $O(\log n)$
- (C) $O(1)$
- (D) $O(n \log n)$

Answer: (C) | Candidate Response: (C) | CORRECT

Q.54. In a singly linked list, each node contains:

- (A) Data and pointer to previous node
- (B) Data and pointer to next node
- (C) Only data
- (D) Data and pointers to both previous and next nodes

Answer: (B) | Candidate Response: (B) | CORRECT

Q.55. What is the worst-case time complexity of Bubble Sort?

- (A) $O(n)$
- (B) $O(n \log n)$
- (C) $O(n^2)$
- (D) $O(\log n)$

Answer: (C) | Candidate Response: (C) | CORRECT

Q.56. Which of the following is a non-linear data structure?

- (A) Array
- (B) Stack
- (C) Queue
- (D) Tree

Answer: (D) | Candidate Response: (D) | CORRECT

Q.57. What is the maximum number of children a node can have in a binary tree?

- (A) 1
- (B) 2
- (C) 3
- (D) Any number

Answer: (B) | Candidate Response: (B) | CORRECT

Q.58. Which traversal of a binary tree visits the root node first?

- (A) Inorder
- (B) Preorder
- (C) Postorder
- (D) Level order

Answer: (B) | Candidate Response: (B) | CORRECT

Q.59. What is the time complexity of binary search on a sorted array?

- (A) $O(n)$
- (B) $O(\log n)$
- (C) $O(n \log n)$
- (D) $O(1)$

Answer: (B) | Candidate Response: (B) | CORRECT

Q.60. Which data structure is best suited for implementing a priority queue?

- (A) Array
- (B) Stack
- (C) Heap
- (D) Linked List

Answer: (C) | Candidate Response: (C) | CORRECT

Q.61. In a hash table, what is the purpose of a hash function?

- (A) To sort the keys
- (B) To map keys to indices in the table
- (C) To encrypt data
- (D) To compress data

Answer: (B) | Candidate Response: (B) | CORRECT

Q.62. What is a collision in hashing?

- (A) When two keys map to the same index
- (B) When a key is not found
- (C) When the table is full
- (D) When hash function fails

Answer: (A) | Candidate Response: (A) | CORRECT

Q.63. Which of the following sorting algorithms has the best average-case time complexity?

- (A) Bubble Sort
- (B) Insertion Sort
- (C) Quick Sort
- (D) Selection Sort

Answer: (C) | Candidate Response: (C) | CORRECT

Q.64. What is the space complexity of a recursive implementation of Fibonacci sequence (naive)?

- (A) $O(1)$
- (B) $O(n)$
- (C) $O(\log n)$
- (D) $O(n^2)$

Answer: (B) | Candidate Response: (B) | CORRECT

Q.65. In a circular queue, how is the rear pointer updated after insertion?

- (A) $\text{rear} = \text{rear} + 1$
- (B) $\text{rear} = (\text{rear} + 1) \% \text{size}$
- (C) $\text{rear} = \text{rear} - 1$
- (D) $\text{rear} = \text{size} - \text{rear}$

Answer: (B) | Candidate Response: (B) | CORRECT

Q.66. Which graph traversal algorithm uses a Queue?

- (A) Depth First Search (DFS)
- (B) Breadth First Search (BFS)
- (C) Dijkstra
- (D) Prim's algorithm

Answer: (B) | Candidate Response: (B) | CORRECT

Q.67. What is the height of a complete binary tree with n nodes approximately?

- (A) n
- (B) $\log_2 n$
- (C) $n/2$
- (D) $\sqrt{n}$

Answer: (B) | Candidate Response: (B) | CORRECT

Q.68. Which of the following is true about a min-heap?

- (A) Parent is always greater than children
- (B) Parent is always smaller than or equal to children
- (C) It is always a balanced BST
- (D) Leaves are always sorted

Answer: (B) | Candidate Response: (B) | CORRECT

Q.69. What is the time complexity of inserting an element at the beginning of a singly linked list?

- (A) $O(1)$
- (B) $O(n)$
- (C) $O(\log n)$
- (D) $O(n^2)$

Answer: (A) | Candidate Response: (A) | CORRECT

Q.70. Which data structure is used for undo operations in text editors?

- (A) Queue
- (B) Stack
- (C) Tree
- (D) Graph

Answer: (B) | Candidate Response: (A) | INCORRECT

Q.71. What does DBMS stand for?

- (A) Database Management System
- (B) Data Backup Management System
- (C) Database Module System
- (D) Data Binary Management System

Answer: (A) | Candidate Response: (A) | CORRECT

Q.72. Which of the following is a DDL command in SQL?

- (A) SELECT
- (B) UPDATE
- (C) CREATE
- (D) INSERT

Answer: (C) | Candidate Response: (C) | CORRECT

Q.73. Which SQL command is used to retrieve data from a database?

- (A) GET
- (B) SELECT
- (C) FETCH
- (D) RETRIEVE

Answer: (B) | Candidate Response: (B) | CORRECT

Q.74. What is a primary key?

- (A) A key that can have NULL values
- (B) A unique identifier for each record in a table
- (C) A key that references another table
- (D) A key used only for sorting

Answer: (B) | Candidate Response: (B) | CORRECT

Q.75. Which normal form eliminates transitive dependency?

- (A) 1NF
- (B) 2NF
- (C) 3NF
- (D) BCNF

Answer: (C) | Candidate Response: (C) | CORRECT

Q.76. What does ACID stand for in the context of database transactions?

- (A) Atomicity, Consistency, Isolation, Durability
- (B) Availability, Consistency, Integrity, Durability
- (C) Atomicity, Concurrency, Isolation, Durability
- (D) Accuracy, Consistency, Isolation, Dependency

Answer: (A) | Candidate Response: (A) | CORRECT

Q.77. Which SQL clause is used to filter groups created by GROUP BY?

- (A) WHERE
- (B) HAVING
- (C) FILTER
- (D) ORDER BY

Answer: (B) | Candidate Response: (B) | CORRECT

Q.78. What is a foreign key?

- (A) A key that uniquely identifies a row
- (B) A key in one table that refers to the primary key of another table
- (C) A key that can contain duplicate values only
- (D) A temporary key

Answer: (B) | Candidate Response: (B) | CORRECT

Q.79. Which of the following is NOT a type of JOIN in SQL?

- (A) INNER JOIN
- (B) OUTER JOIN
- (C) CROSS JOIN
- (D) PARALLEL JOIN

Answer: (D) | Candidate Response: (D) | CORRECT

Q.80. What is the purpose of the COMMIT statement?

- (A) To undo a transaction
- (B) To permanently save the changes made by a transaction
- (C) To lock a table
- (D) To create a savepoint

Answer: (B) | Candidate Response: (B) | CORRECT

Q.81. Which of the following is a DML command?

- (A) CREATE TABLE
- (B) ALTER TABLE
- (C) INSERT INTO
- (D) DROP TABLE

Answer: (C) | Candidate Response: (C) | CORRECT

Q.82. What is an index in a database?

- (A) A copy of the entire table
- (B) A data structure that improves the speed of data retrieval
- (C) A type of primary key
- (D) A temporary table

Answer: (B) | Candidate Response: (D) | INCORRECT

Q.83. Which SQL function returns the number of rows in a result set?

- (A) SUM()
- (B) COUNT()
- (C) AVG()
- (D) MAX()

Answer: (B) | Candidate Response: (B) | CORRECT

Q.84. What is a view in DBMS?

- (A) A physical table
- (B) A virtual table based on the result of a SQL query
- (C) A type of index
- (D) A stored procedure

Answer: (B) | Candidate Response: (B) | CORRECT

Q.85. Which isolation level prevents dirty reads?

- (A) Read Uncommitted
- (B) Read Committed
- (C) Both B and higher levels
- (D) None

Answer: (C) | Candidate Response: (C) | CORRECT

Q.86. What is the main purpose of an Operating System?

- (A) To compile programs
- (B) To manage hardware and software resources
- (C) To design algorithms
- (D) To create databases

Answer: (B) | Candidate Response: (B) | CORRECT

Q.87. Which of the following is a type of process scheduling algorithm?

- (A) FCFS
- (B) Round Robin
- (C) Priority Scheduling
- (D) All of the above

Answer: (D) | Candidate Response: (C) | INCORRECT

Q.88. What is a deadlock?

- (A) A situation where processes wait indefinitely for resources held by each other
- (B) A process that has finished execution
- (C) A type of virus
- (D) A memory leak

Answer: (A) | Candidate Response: (A) | CORRECT

Q.89. Which of the following is NOT a necessary condition for deadlock?

- (A) Mutual Exclusion
- (B) Hold and Wait
- (C) Preemption
- (D) Circular Wait

Answer: (C) | Candidate Response: (C) | CORRECT

Q.90. What is virtual memory?

- (A) A technique that uses disk space to extend RAM
- (B) A type of cache memory
- (C) Memory that is only used by the OS
- (D) Physical memory only

Answer: (A) | Candidate Response: (A) | CORRECT

Q.91. Which page replacement algorithm replaces the page that will not be used for the longest period of time in future?

- (A) FIFO
- (B) LRU
- (C) Optimal
- (D) Clock

Answer: (C) | Candidate Response: (C) | CORRECT

Q.92. What is the purpose of a system call?

- (A) To call a function in the same program
- (B) To request a service from the operating system kernel
- (C) To compile the program
- (D) To allocate stack memory

Answer: (B) | Candidate Response: (B) | CORRECT

Q.93. Which of the following is a non-preemptive scheduling algorithm?

- (A) Round Robin
- (B) Shortest Job First (SJF) - non-preemptive
- (C) Priority Scheduling (preemptive)
- (D) Multilevel Queue

Answer: (B) | Candidate Response: (B) | CORRECT

Q.94. What is thrashing in an operating system?

- (A) Excessive paging activity leading to low CPU utilization
- (B) A type of virus attack
- (C) Fast process switching
- (D) Memory fragmentation

Answer: (A) | Candidate Response: (A) | CORRECT

Q.95. Which of the following is used for inter-process communication?

- (A) Pipes
- (B) Shared Memory
- (C) Message Queues
- (D) All of the above

Answer: (D) | Candidate Response: (A) | INCORRECT

Q.96. What is the role of the kernel in an OS?

- (A) User interface only
- (B) Core component that manages system resources
- (C) Application software
- (D) Device driver only

Answer: (B) | Candidate Response: (B) | CORRECT

Q.97. Which scheduling algorithm can cause starvation?

- (A) FCFS
- (B) Round Robin
- (C) Priority Scheduling
- (D) None of the above

Answer: (C) | Candidate Response: (C) | CORRECT

Q.98. What is context switching?

- (A) Switching between user and kernel mode only
- (B) Saving and restoring the state of a process so that execution can be resumed later
- (C) Changing the priority of a process
- (D) Loading a new program

Answer: (B) | Candidate Response: (B) | CORRECT

Q.99. Which of the following memory allocation methods suffers from external fragmentation?

- (A) Paging
- (B) Segmentation
- (C) Both A and B
- (D) None

Answer: (B) | Candidate Response: (B) | CORRECT

Q.100. What is a semaphore?

- (A) A type of process
- (B) A synchronization tool used to control access to shared resources
- (C) A scheduling algorithm
- (D) A memory management technique

Answer: (B) | Candidate Response: (B) | CORRECT

Q.101. What does TCP stand for?

- (A) Transmission Control Protocol
- (B) Transfer Control Protocol
- (C) Transport Communication Protocol
- (D) Transmission Communication Protocol

Answer: (A) | Candidate Response: (A) | CORRECT

Q.102. Which layer of the OSI model is responsible for routing?

- (A) Data Link Layer
- (B) Network Layer
- (C) Transport Layer
- (D) Session Layer

Answer: (B) | Candidate Response: (B) | CORRECT

Q.103. What is the default port number for HTTP?

- (A) 21
- (B) 25
- (C) 80
- (D) 443

Answer: (C) | Candidate Response: (C) | CORRECT

Q.104. Which protocol is connectionless?

- (A) TCP
- (B) UDP
- (C) HTTP
- (D) FTP

Answer: (B) | Candidate Response: (B) | CORRECT

Q.105. What does IP stand for?

- (A) Internet Protocol
- (B) Internal Protocol
- (C) Interface Protocol
- (D) Information Protocol

Answer: (A) | Candidate Response: (A) | CORRECT

Q.106. Which of the following is a private IP address range?

- (A) 192.168.0.0 – 192.168.255.255
- (B) 8.8.8.8 – 8.8.8.9
- (C) 1.1.1.1 – 1.1.1.2
- (D) 208.67.222.222

Answer: (A) | Candidate Response: (A) | CORRECT

Q.107. What is the purpose of DNS?

- (A) To assign IP addresses dynamically
- (B) To translate domain names into IP addresses
- (C) To encrypt data
- (D) To route packets

Answer: (B) | Candidate Response: (B) | CORRECT

Q.108. Which of the following is NOT an OOP principle?

- (A) Encapsulation
- (B) Inheritance
- (C) Polymorphism
- (D) Compilation

Answer: (D) | Candidate Response: (D) | CORRECT

Q.109. What is the output of the following C code?

```
int x = 5;
int *p = &x;
printf("%d", *p);
```

- (A) Address of x
- (B) 5
- (C) Garbage value
- (D) Error

Answer: (B) | Candidate Response: (B) | CORRECT

Q.110. What will be the output of this Python code?

```
a = [1, 2, 3]
b = a
b.append(4)
print(a)
```

- (A) [1, 2, 3]
- (B) [1, 2, 3, 4]
- (C) [4]
- (D) Error

Answer: (B) | Candidate Response: (B) | CORRECT

Q.111. Which of the following is true about recursion?

- (A) A function calling itself
- (B) A function calling another function
- (C) A loop that never ends
- (D) A type of sorting

Answer: (A) | Candidate Response: (A) | CORRECT

Q.112. What is the time complexity of accessing an element in a hash table (average case)?

- (A) O(n)
- (B) O(log n)
- (C) O(1)
- (D) O(n log n)

Answer: (C) | Candidate Response: (C) | CORRECT

Q.113. Which of the following sorting algorithms is stable?

- (A) Quick Sort
- (B) Heap Sort
- (C) Merge Sort
- (D) Selection Sort

Answer: (C) | Candidate Response: (C) | CORRECT

Q.114. What does the following Java code print?

```
String s = "Hello";
System.out.println(s.length());
```

- (A) 4
- (B) 5
- (C) 6
- (D) Error

Answer: (B) | Candidate Response: (B) | CORRECT

Q.115. In software engineering, what does SDLC stand for?

- (A) Software Development Life Cycle
- (B) System Design Life Cycle
- (C) Software Design Logic Cycle
- (D) System Development Logic Cycle

Answer: (A) | Candidate Response: (D) | INCORRECT

Q.116. Which of the following is a valid way to declare a constant in C++?

- (A) const int x = 10;
- (B) constant int x = 10;
- (C) final int x = 10;
- (D) int const = 10;

Answer: (A) | Candidate Response: (A) | CORRECT

Q.117. What is the output of this C code?

```
printf("%d", sizeof('A'));
```

- (A) 1
- (B) 2
- (C) 4
- (D) Depends on compiler (often 4 in C)

Answer: (D) | Candidate Response: (D) | CORRECT

Q.118. Which data structure is used to convert infix expression to postfix?

- (A) Queue
- (B) Stack
- (C) Tree
- (D) Graph

Answer: (B) | Candidate Response: (B) | CORRECT

Q.119. What is polymorphism in OOP?

- (A) Ability of different objects to respond to the same message in different ways
- (B) Hiding implementation details
- (C) Creating multiple instances
- (D) Inheriting properties

Answer: (A) | Candidate Response: (A) | CORRECT

Q.120. Which of the following is used to find the shortest path in a weighted graph?

- (A) BFS
- (B) DFS
- (C) Dijkstra's Algorithm
- (D) Binary Search

Answer: (C) | Candidate Response: (C) | CORRECT
