Step Academy official

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STUDENT NAME	
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CLASS	New 1st Year (FSC/ICS)
SUBJECT	Computer
TOTAL MARKS	100
Paper Type	

Q1. Choose the correct answer. **15X1=15**

1. Which of the following is NOT a stage of the 5. Software Development Life Cycle?

(A) Testing **(B)** Cooking **(C)** Coding **(D)** Design

2. What is the goal of requirement gathering in SDLC?

(A) To test the final product **(B)** To understand user needs **(C)** To design the system interface **(D)** To write code

3. Which design pattern allows you to abstract the creation of objects?

(A) Singleton Pattern **(B)** Observer Pattern **(C)** Factory Pattern **(D)** Strategy Pattern

4. What is an Integrated Development Environment (IDE)?

(A) A tool for converting code into machine language

(B) A software suite that integrates development tools like editors, compilers, and debuggers

(C) A programming language used for creating software

(D) A hardware tool for compiling software

5. What is the main benefit of using an IDE?

(A) It only provides a text editor for coding

(B) It integrates various development tools into one platform to streamline development

(C) It is used for debugging only

(D) It compiles the code into machine language

6. What does the print() function do in Python?

(A) Calculates numbers **(B)** Displays output on the screen **(C)** Stores data in memory **(D)** Deletes files

7. What does the input() function do in Python?

(A) Displays a message on the screen

(B) Takes input from the user and returns it as a string

(C) Executes the code **(D)** Converts input data into an integer

8. In the following code, what will be printed?number = 3while number <6:print(number)number += 1

(A) 3 **(B)** 3, 4, 5 **(C)** 3, 4, 5, 6 **(D)** None of the above

9. What are the three essential parts of a computational problem?

(A) Variables, loops, conditionals **(B)** Input, process, output **(C)** Code, function, class **(D)** Logic, loop, module

10. Which of the following is an example of a Class P problem?

(A) Finding the best move in chess **(B)** Solving a maze blindly **(C)** Sorting a list of numbers **(D)** Predicting future weather

11. What is true about NP-Hard problems?

(A) They are easy to solve **(B)** They have no solution

(C) They are at least as hard as the hardest NP problems

(D) They can always be solved in polynomial time

12.

In Dynamic Programming, what technique is commonly used to store results?

(A) Stacks **(B)** Queues **(C)** Tables or arrays **(D)** Functions

13. What happens if Dynamic Programming is not used in problems with repeating subproblems?

(A) The solution is faster **(B)** The solution becomes inaccurate **(C)** Time is wasted on recalculations **(D)** Memory is saved

14. Backtracking is most similar to which real-world activity?

(A) Writing a story **(B)** Exploring a maze **(C)** Solving a math problem **(D)** Watching a movie

15. A scenario where a graph data structure is most suitable:

(A) Managing a to-do list **(B)** Modeling a line of customers in a store **(C)** Representing connections in a social network **(D)** All of the above

Q2. Write short answers of the following questions. Any 6 **6X2=12**

1 . Give one example of a non-functional requirement related to system performance.

2 . How are non-functional requirements different from functional requirements.

3 . What is the main purpose of the design phase in software development?

4 . What are software development methodologies used for?

5 . What is the purpose of using design patterns in software development?

6 . What is the main benefit of using the Factory Pattern?

7 . How do design patterns contribute to code reusability?

8 . What is the main goal of the Software Development Life Cycle (SDLC)?

9 . Why might software need to be updated after deployment?

Q3. Write short answers of the following questions. Any 6 **6X2=12**

1 . Name two tools commonly used for debugging.

2 . What is the difference between online and offline computing platforms?

3 . What is a variable in Python?

4 . What is the purpose of the if statement in Python?

5 . What does the if-else statement do in Python?

6 . Explain how default parameters work in Python functions.

7 . What is a package in Python?

8 . What is a list in Python?

9 . What is the main goal of the Software Development Life Cycle (SDLC)?

Q4. Write short answers of the following questions. Any 6 **6X2=12**

1 . What is a development environment in Python programming?

2 .

What is the use of adding Python to the PATH during installation?

3 . What do comparison operators in Python do?

4 . What does the if-else statement do in Python?

5 . How does the if-elif-else statement differ from the if-else statement?

6 . Can a for loop be used with a string?

7 . What does NP stand for in Class NP?

8 . How does BFS keep track that need to be explored?

9 . What is a variable in Python?

Q5. Write short answers of the following questions. Any 6 **6X2=12**

1 . Compare tractable and intractable problems in the context of computational complexity.

2 . What is Big O notation used for?

3 . When is Dynamic Programming most effective?

4 . How does Dynamic Programming improve efficiency?

5 . What is Backtracking in algorithm design?

6 . What is a list in Python?

7 . How can you access elements in a list?

8 . How does a queue work in real life?

9 . What is a vertex in a graph?

Q6. Write detailed answers of the following questions. Any 3 **3X8=24**

1 . Explain modular programming in Python and describe how it helps in large projects.

2 . Describe how compound assignment operators help simplify code in Python.

3 . Explain how the for loop works in Python with an example.

4 . Explain how to define and invoke a function in Python with an example.

5 . Define Tree and explain its properties sproperties.