



## ***JOB READY ASSESSMENT BLUEPRINT***

### **COMPUTER PROGRAMMING**

**Test Code: 4123**

**Version: 01**

**Preliminary Blueprint - final version is subject to slight changes.**

#### **Specific Competencies and Skills Tested in this Assessment:**

##### **General Information and Concepts**

Apply general design and programming concepts  
Identify various hardware platforms and runtime environments  
Identify human aspects in information systems  
Identify general information technology (IT) definitions and terms  
Adhere to best programming practices and methodologies  
Exhibit understanding of data hierarchy, access methods, and manipulation

##### **Ethics, Legal Compliance, and Security**

Identify concepts of ethics and legal compliance  
Identify security concepts  
Identify appropriate safety procedures

##### **Analyze Programming Problems, Manage Projects, and Create Flowchart Solutions**

Analyze user requirements for a given outcome  
Determine input and output formats for a given code segment  
Identify and describe a data flow diagram  
Identify and describe a process logic diagram  
Describe steps in the system development cycle  
Describe steps and roles in the project management life cycle  
Define key terminology related to computer programming

##### **Design Program Solutions**

Determine appropriate data types and requirements  
Determine where data is to be accessed or stored  
Design data storage and layout  
Apply principles of quality, efficient programming (e.g., reusability of code, naming conventions, inline documentation)  
Explain the importance of a design review  
Assess impact of changes on existing systems

## ***Computer Programming (continued)***

### **Code Programs**

Distinguish and identify different types of programming languages  
Determine the variables and data types for a program  
Prepare and code routines using structured logic  
Apply appropriate computer language syntax  
Create and identify unit testing requirements  
Document appropriate comments and programmer notes

### **Test Programs**

Explain system testing requirements  
Design and analyze test plan for use in program testing  
Test programs and evaluate results for accuracy  
Correct programming errors discovered during testing  
Apply implementation plans for a new system

### **Maintain Programs and Implement Change Management Procedures**

Change existing programs as requirements change  
Update documentation for changes made to existing programs  
Provide user instructions on changes made to existing programs

### **Complete User Documentation and Technical Writing**

Develop documentation narrative  
Document data use and storage  
Develop help resources for users

## ***Computer Programming (continued)***

### **Written Assessment:**

Administration Time: 3 hours  
Number of Questions: 187

#### ***Areas Covered:***

22%	General Information and Concepts
7%	Ethics, Legal Compliance, and Security
19%	Analyze Programming Problems, Manage Projects, and Create Flowchart Solutions
12%	Design Program Solutions
15%	Code Programs
14%	Test Programs
5%	Maintain Programs and Implement Change Management Procedures
6%	Complete User Documentation and Technical Writing

#### ***Sample Questions:***

A link or reference library provides

- A. error checking
- B. supporting code
- C. debugging tools
- D. profile definitions

The unauthorized copying of licensed software products is called

- A. piracy
- B. larceny
- C. felony
- D. spyware

The purpose of a substring function is to

- A. separate an alpha field into smaller parts
- B. have one part of a header appear under a main heading
- C. be able to print a formula such as H<sub>2</sub>O
- D. have a string of data underneath another string of data in a report

DO WHILE and FOR NEXT are two variations of \_\_\_\_\_ structure.

- A. branch
- B. selection
- C. simple sequence
- D. loop

The \_\_\_\_\_ phase consists of coding, testing, and integration.

- A. requirements
- B. design
- C. implementation
- D. planning

## *Computer Programming (continued)*

### **Performance Assessment:**

Administration Time: 2 hours  
Number of Jobs: 2

#### **Areas Covered:**

47%

#### **Design Solution Logic**

*Read input file until end of File (EOF), list name and date of birth in each record, count number of people in the file, calculate age of each person in the file, calculate average age of group, produce a Summary Line (indicating total number of people and average age for the group), produce hard copy of logic flow diagram, and time to complete Job 1.*

53%

#### **Write a Program**

*Enter customer names; customer order: Susan Smith; customer order: Reshay Thompson; customer order: George Jackson; cumulative information, column labeling, data accuracy, output form, and time to complete Job 2.*

**Sample Job:** Design Solution Logic

**Maximum Job Time:** 1 hour

**Participant Activity:** The participant will be provided a programming situation. Create a flowchart that solves the programming situation (problem definition).