061306T4CSC

COMPUTER SCIENCE LEVEL 6

ICT/OS/CS/CR/04/6/A

Understand Fundamentals of Programming

Nov/Dec 2024

TVET CURRICULUM DEVELOPMENT, ASSESSMENT AND CERTIFICATION COUNCIL (TVET CDACC)

WRITTEN ASSESSMENT

Time: 3 HOURS

INSTRUCTIONS TO CANDIDATE

1. Marks for each question are indicated in the brackets.
2. The paper consists of **TWO** sections: **A** and **B**.
3. Candidates are provided with a separate answer booklet
4. **DO NOT** write on this question paper.

This paper consists of FOUR (4) printed pages

Candidates should check the question paper to ascertain that all pages are printed as indicated and that no questions are missing.

SECTION A (40 MARKS)

Answer ALL the questions in this section.

1. State THREE types of translators as used in programming (3 marks)
2. Various rules should be observed while creating identifiers in java programming. Highlight TWO rules to be observed by a programmer when creating identifiers (2 marks)
3. Program development involves various phases that are followed to attain a quality software. Explain the first TWO phases program development. (4 marks)
4. State THREE types of errors that can be encountered while coding a java program (3 marks)
5. There are various data types that are used to classify data in programming. Highlight any FOUR data types that can be used in java programming (4 marks)
6. Data types in java programming can be converted from one format to another. Explain type casting in relation to java programming. (2 marks)
7. Inheritance is an important concept in programming. Highlight TWO types of inheritance that can be used in java programming (2 marks)
8.
   a. Explain the term class as used in programming (2 marks)
   b. Explain TWO advantages of Java programming language (4 marks)
9.
   a. Define the terms literal as used in java programming (2 marks)
   b. Explain the uses of the following inbuilt functions as used in Java programming (4 marks)
      i. toLowerCase()
      ii. concat()
10. Program testing is an important task in programming. Highlight TWO advantages of testing a program. (2 marks)
11. Distinguish between a constant and a variable (2 marks)
12. Differentiate between executable and declarative statements as used in programming (4 marks)

SECTION B (60 MARKS)

Answer Any THREE Questions in This Section

13. a. Write a java program that can calculate the volume of and surface area of a closed cylinder given that the radius(r)=12cm and height(h)=24cm. (16 marks)

Note that Volume= πr^2h; Surface area= $2\pi r^2 + 2\pi rh$

b. Explain TWO types of algorithms that can be used in program development (4 marks)

14.

a. Explain the **if-else** selection control structures as used in java programming (4 marks)

b. Explain the importance of using functions in programming (4 marks)

c. Object oriented programming is a fundamental concept when developing programs.

Explain FOUR advantages of using object oriented programming (8 marks)

d. Write a Java program that can add two integers 10 and 20 and display the result on the screen. (4 marks)

15.

a. The management of Kepo Secondary school wishes to automate the examination system to improve efficiency. As a computer science student, you have been approached to write a java program that can calculate the total and average marks scored by a student in a test. the program should also determine the grade and display it on the screen given that the marks scored are Science=78, English=65, Biology=80.

Use the information given below to determine the grade (10 marks)

Average	**Grade**
75-100	A
65-74	B
55-64	C
40-54	D
0-39	E

b. Documentation is recommended during software development. By the use of examples ,explain TWO types of comments that can be used in a java program (4 marks)

c. Explain the following terms as used in programming
   i. Class
   ii. Object
   iii. Method (6 marks)

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a. Explain FIVE uses of Integrated Development Environment during programming (10 marks)

b. Write a program that can calculate the sum and displays the numbers 10, 20, 30, 40, 50. Use while loop. (10 marks)

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