ZIMBABWE EZEKIEL GUTI UNIVERSITY

FACULTY OF HEALTH, SCIENCE AND TECHNOLOGY

DEPARTMENT OF DIGITAL TECHNOLOGY

EXAMINATION PAPER

COURSE CODE	:	MIS 105
COURSE TITLE	:	Principles of Programming Languages
SPECIAL REQUIREMENTS	:	None
DURATION	:	3 Hours
LEVEL	:	1.1
DATE	:	May 2023

INSTRUCTIONS TO CANDIDATES:

1. This paper consists of 2 sections
2. Answer **ALL** Questions in SECTION A and ANY TWO Questions from SECTION B in booklet provided.
3. Start each Question on a new page

There are 4 printed pages for this question paper

SECTION A

*Answer **ALL** questions from this section. The section carries **60 marks***

Question 1

Explain the following programming terms:

a) Computer program

b) Programming language

c) Program statement

d) Debugging

e) Program expression **[5 x 2 marks]**

Question 2

Discuss the differences between the following programming terms and concepts:

a) Operator and operand

b) WriteLine() and Write()

c) Compiler and interpreter

d) Runtime error and compile time error

e) Unary operator and binary operator **[5 x 2 marks]**

Question 3

Compute the values of the following C# expressions assuming that **a, b** and **c** are integer variables and **d** is a float variable as declared below.

```
int a = 2, b = 3, c = 4;
float d = 5.0;
```

i) (b + 2) / b + 2

ii) b * c / d

iii) a / (b / c - 1)

iv) b % c * (a / d)

v) ++a + b-- **[5 x 2 marks]**

Question 4

State any **10** operators that are supported by C# and write valid expression using each of the operators **[10 Marks]**

Question 5

a) State **TWO** reasons why we might use pseudocode to write an algorithm **[4 marks]**

b) The following pseudocode algorithm calculates the area of a floor in order to calculate the required size of a carpet. Trace the values in each variable after the execution of each line. You should assume an input value of 30.5 for length and 25 for width.

1. Display "What is the width of the floor?"
2. Input width
3. Display "What is the length of the floor?"
4. Input length
5. area = length * width
6. Output "For your floor you will need a carpet that is:"
7. Output area

[6 marks]

Question 6

State any **5** guidelines for naming identifiers **[10 marks]**

SECTION B

*Choose any **TWO** questions from this section. Each question carries **20 marks**.*

Question 7

A company insures its drivers in the following cases:

a) If the driver is married.

b) If the driver is unmarried, male & above 30 years of age.

c) If the driver is unmarried, female & above 25 years of age.

In all other cases the driver is not insured. If the marital status, sex and age of the driver are the inputs, write a program to determine whether the driver is to be insured or not.

[20 marks]

Question 8

Write C# statements to do the following:

a) Declare an array *alpha* of 17 components of type int. **[2 marks]**

b) Output the value of the 12th component of the *alpha* array. **[3 marks]**

c) Set the value of the 5th component of the *alpha* array to 35. **[3 marks]**

d) Set the value of the 9th component of the *alpha* array to the sum of the 6th and 13th components of the *alpha* array. **[3 marks]**

e) Set the value of the 4th component of the *alpha* array to three times the value of the 8th component minus 57. **[3 marks]**

f) Output *alpha* so that five components appear on each line. **[6 marks]**

Question 9

a) Write a program that will accept radius of a circle and given that *pi=3.142*, the program must use a function **calc()** to determine and display the area. **[10 Marks]**

b) Write a C program which calculates and display the sum and average of all odd numbers between 1 and 49. **[10 marks]**

*** * * Wish you all the best * * ***

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