WALTER SISULU UNIVERSITY

DEGREE AND DIPLOMA

2023 OCTOBER/NOVEMBER EXAMINATION

QUESTION PAPER

SUBJECT : DEVELOPMENT SOFTWARE 1 - MAINSTREAM

: DEVELOPMENT SOFTWARE 1 - EXT YEAR 2

SUBJECT CODE : DES15P0, DES15B0, DES15Q0, DEV15P0

EXAMINER/S :S TWETWA  
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MODERATOR : MR S NIKANI

DURATION : 3 HOURS

MARKS : 100

**INSTRUCTIONS**

Answer all questions.

Follow examination rules.

Calculator may be used.

Label your work correctly.

Write only answers.

**QUESTION 1 [10 MARKS]**

* 1. Evaluate (10 \* 3 = 4 + 3 \* 5) OR (15 < 4 \* 3 + 5) AND NOT (7 < 7 MOD 3) (4)

30 = 19 OR 15 < 15 AND NOT (7<1)

FALSE OR FALSE AND NOT FALSE

FALSE OR FALSE AND TRUE

FALSE OR FALSE

FALSE

1. TRUE
2. FALSE
   1. Evaluate the expression

K = A + B \* C ^ (20 – c) MOD 5 + 8-16 \ A, where A = 4, B = 10, C = 18 (4)

= 4 + 10 \* 18^(20-18) MOD 5 +8 – 16/4

= 4 + 10 \* 324 MOD 5 + 8 – 16/4

= 4 + 3240 MOD 5 + 8 – 4

=4 + 0 +8 – 4

=8

A) TRUE

B) FALSE

* 1. Evaluate A < 10 OR B < C ^ 2, where A = 10, B = 5, C = 4 (2)

10 < 10 OR 5 < 4^2

10 < 10 OR 5 < 16

FALSE OR TRUE

TRUE

1. TRUE
2. FALSE

**QUESTION 2 [15 MARKS]**

2.1 In sequence control structures, instructions are executed in the sequence in which they are written.

A) TRUE

B) FALSE

2.2 Computers understand high level languages easily.

A) TRUE

B) FALSE

2.3 Heuristic problems are created by following a set of instructions.

A) TRUE

B) FALSE

2.4 Flowcharts are used to test solutions in programming

A) TRUE

B) FALSE

2.5 233St is a valid variable name.

A) TRUE

B) FALSE

2.6 Bank teller is an example of system users.

A) TRUE

B) FALSE

2.7 System analysts are responsible for writing computer programs.

A) TRUE

B) FALSE

2.8 Hardware is a collection of instructions, data, or computer programs that are used to run machines and carry out particular activities.

A) TRUE

B) FALSE

2.9 A digital computer cannot function without electricity.

A) TRUE

B) FALSE

2.10 The following statement is an example of an ambiguous instruction.

*Lets met at the mall at 2pm.*

1. TRUE
2. FALSE

2.11 Coding stage is where the programmer translate the pseudocode into the actual computer program

A) TRUE

B) FALSE

2.12 Procedures are instructions to personnel indicating how the processing must take place.

A) TRUE

B) FALSE

2.13 When a variable is declared as numeric, it is automatically assigned an initial value of 0.

A) TRUE

B) FALSE

2.14 The \* sign has a higher precedence level than ^ sign.

A) TRUE

B) FALSE

2.15 8 bits make up 1 byte.

A) TRUE

B) FALSE

**QUESTION 3 [14 MARKS]**

3.1 IF MARK > 60 AND MARK < = 75 THEN is the correct condition to use to check if the mark is between 60 and 75. (2)

A) TRUE

B) FALSE

3.2 Given that A = 10, B = 5, and C = 2, the following code will display FALSE on the screen: (3)

IF (A = B) AND (C > A) THEN

DISPLAY “TRUE”

ELSE

DISPLAY “FALSE”

END IF

1. TRUE
2. FALSE

3.3 The following code displays **18** on the screen (3)

DECLARE NUM AS INTEGER

NUM = 2

DO WHILE NUM <= 10

NUM= NUM \* 3

LOOP

DISPLAY NUM

1. TRUE
2. FALSE

3.4 The following code correctly counts the number of students with marks over 75 in the variable CNT1 (3)

DECLARE J, MARK, CNT1 AS REAL

FOR J = 1 TO 10

ACCEPT MARK

IF MARK >= 75 THEN

CNT1 = CNT1 + 1

ENDIF

NEXT J

1. TRUE
2. FALSE

3.5 The following code displays MY COLOUR IS BLUE on the screen: (3)

DECLARE COLOUR AS STRING

COLOUR = “GREEN”

SELECT CASE COLOUR

CASE “BLUE”

DISPLAY “MY COLOUR IS BLUE”

CASE “RED”

DISPLAY “MY COLOUR IS RED”

CASE ELSE

DISPLAY “NOT MY PREFERRED COLOUR”

END SELECT

1. TRUE
2. FALSE

**QUESTION 4 [11 MARKS]**

4.1 Write the output displayed on the screen when the following VB code is executed. (2)

Dim MARK As Integer

MARK = 500

If MARK >= 50 Then

Console.WriteLine("PASS")

ELSE

Console.WriteLine("FAIL")

End If

1. PASS
2. FAIL
3. OUT OF RANGE
4. NONE OF THESE

4.2 What is displayed on the screen by the following code: (3)

DECLARE K,A AS INTEGER

FOR K = 4 TO 2 STEP -3

A = K + A

NEXT K

DISPLAY K, A

A) K, A

B) 1 4

C) 4 1

D) 4 4

4.3 What is displayed on the screen by the following code: (3)

DECLARE NUM1, NUM2 AS REAL

NUM1 = 20

NUM2 = NUM1 \ 2

IF NUM2 \* 5 > 30 AND NUM1 > NUM2 \* 3 THEN

DISPLAY NUM2

ELSE

DISPLAY NUM1

ENDIF

a. NUM2

b. NUM1

c. 20

d. 10

4.4 What is displayed by the following pseudocode if the user enters Mary? (3)

BEGIN

DECLARE gender AS string

DISPLAY “ENTER GENDER: “

ACCEPT gender

IF gender=”Male” THEN

DISPLAY “He is a gentleman”

ELSE IF gender = “Female”

DISPLAY “She is a lady”

ELSE

DISPLAY “UNKNOWN GENDER”

END IF

END

1. She is a lady
2. He is a gentleman
3. UNKNOWN GENDER
4. None of these

**QUESTION 5 [20 MARKS]**

Debonairs pizza is having a special on pizzas. If a customer orders more than 5 regular size pizzas they get a discount of 10%. If a customer orders more than 3 large pizzas, they get a discount of 12.5%. A regular size pizza costs R25-00 and a large pizza costs R65-00.

Write the VB CODING for a program which will accept the size (the user will input **R** for regular and **L** for large) and the quantity (how many) and then calculate and display the following:

a. The total amount before discount.

b. The discount amount.

c. The total amount after the discount has been subtracted.

**QUESTION 6 [30 MARKS]**

The Beacon Bay Life Hospital is gathering information about its patients. For each patient they will input the following:

* **age**
* **gender (which will be M or F )**
* **treatment code (which will be 1 or 2 or 3 - see table below)**

They want a program which will accept the above input and count the required totals.

The program MUST use a **FOR LOOP** to accept the input for **1000 patients**.

When the input is complete, the program must display (with meaningful messages):

a. The total number of female patients

b. The total number of male patients over the age of 50

c. The total number of female patients under the age of 18 treated for pregnancy

d. The total number of patients over the age of 30 treated for CANCER or DIABETIC

|  |  |
| --- | --- |
| **TREATMENT** | **CODE** |
| **CANCER** | **1** |
| **PREGNANCY** | **2** |
| **DIABETIC** | **3** |

**DO THE FOLLOWING**

Write the **PSEUDOCODE** for the above program.

* You MUST use a **FOR LOOP**