WALTER SISULU UNIVERSITY

2022 DEGREE AND DIPLOMA TESTS:
FINAL EXAM – QUESTION PAPER

SUBJECT   : DEVELOPMENT SOFTWARE 1 - MAINSTREAM
                                 : DEVELOPMENT SOFTWARE 1 - EXT YEAR 2

SUBJECT CODE   : DES15P0, DES15B0, DES15Q0

EXAMINER/S   :MS S TWETWA
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MODERATOR   : MR P NOMNGA

DURATION   : 180 minutes online (3 hours)

MARKS   : 100

INSTRUCTIONS

This test is for marks and test conditions for a closed book test apply.
During the test: You may not consult notes, slides, videos etc.; you may not photograph or
record the test; you may not communicate with anyone in any way; you may not share
answers with or from anyone; you may not use email, navigate to other sites, etc.
Follow the instructions shown. There are **16 TRUE / FALSE** questions,   **20 MULTIPLE
CHOICE** questions and **1 long ESSAY** question.
If the network goes down, you should be able to continue from where you were.
You are only allowed one attempt. Results will be shown after they have been graded by the
lecturer.
YOU HAVE 180 MINUTES TO ANSWER ALL QUESTIONS

OPTIONS
Show instructions: yes   Open in new window: yes
Multiple attempts: no   Force completion: no
Auto submit : on   Set timer: 180 minutes   [3 hrs]
Display after: 06:00   04 Nov Display until: 15:00 04 Nov
Include in grade centre
Test Presentation: one at a time, randomize questions, randomise answers in MC

QUESTION 1   **TRUE / FALSE**   **[35 marks]**

1. Evaluate the following express. (4)
$(9 < 4 * 3 + 5)$ OR $(8 * 3 = 4 + 3 * 5)$ AND NOT $(7 < 7$ MOD $2)$

a. True
b. False

2. IF TEMP $> = 12$ OR TEMP $< = 25$ THEN is the correct condition to use to check if the temperature is between 12 and 25 celsius degrees. (3)

a. True
b. False

3. Evaluate the following express. (3)
$b + 4 > c * 5 ^ 2$ OR $a <> b$ AND b MOD $a = 5$ where a= 3, b = 7, c = 2

a. True
b. False

4. Given that A = 4, B = 2, and C = 1.5, the following code will display FALSE on the screen: (3)
```
    IF (A < B) AND (C > A) THEN
       DISPLAY "TRUE"
       ELSE
       DISPLAY "FALSE"
    END IF
```

a. True
b. False

5. The following code displays 10 on the screen (3)
```
    DECLARE NUM AS INTEGER
    NUM = 2
    DO WHILE NUM <  5
      NUM= NUM * 3
    LOOP
    DISPLAY NUM
```

a. True
b. False

6. The following code correctly counts the number of students who achieved distinctions with marks over 74 in the variable cntDst (2)
```
    DECLARE K, mark, cntDst AS REAL
    FOR K = 1 TO 10
      ACCEPT mark
      IF mark >=74 THEN
          cntDst = cntDst + 1
```

ENDIF
    NEXT K

a. True
b. False

7. In selection control structures, instructions are executed in the sequence in which they are written   (1)

a. True
b. False

8. Sound produced by computer speakers is an example of output.   (1)

a. True
b. False

9. Machine language is easily understood by computers while highly level languages are easily understood by human beings.   (1)

a. True
b. False

10. Point of sale (PoS) systems used in retail enterprises are operated by till operators. A till operator is an example of a software user.   (1)

a. True
b. False

11. Including comments within the code is unacceptable and have no benefits at all.   (1)

a. True
b. False

12. Evaluate the following expression, where A = TRUE, B = FALSE, C = TRUE   (2)

B OR C AND NOT A

a. True
b. False

13. Logic errors appear when the programmer is writing the instructions and they are most often caused by spelling mistakes.   (1)

a. True
b. False

14. The following 2 blocks of code will always produce the same result: (5)


```
DECLARE K, X  AS REAL
FOR K = 0 to 4 STEP 1.5
        X = K + 3
        DISPLAY X
NEXT

AND

DECLARE K, X  AS REAL
DO WHILE K <  4
        X = K + 3
        DISPLAY X
        K = K + 1.5
LOOP
```

   a. True
   b. False

15. The following code displays YELLOW on the screen: (3)

```
DECLARE COLOUR, YELLOW AS STRING
YELLOW = "X"
SELECT CASE COLOUR
        CASE "YELLOW"
                DISPLAY YELLOW
        CASE ELSE
                DISPLAY "YELLOW"
END SELECT
```

   a. True
   b. False

16. Application software controls the hardware of the computer.   (1)

   a. True
   b. False

QUESTION 2   **MULTIPLE CHOICE**   **[40 marks]**

1.Write the output displayed on the screen when the following VB code is executed.   (2)
```
Dim MARK As Integer
MARK = 50
If MARK > 50 Then
        Console.WriteLine("Pass")
Else
        Console.WriteLine("Fail")
End If
```

   a. PASS
   b. FAIL
   c. Pass
   d. Fail

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

```
Dim NUM As integer
NUM = 8
Select Case NUM
Case 6
Console.WriteLine("Case 1")
Case 7 To 8
Console.WriteLine("Case 2")
Case 8, 9, 10, 11
Console.WriteLine("Case 3")
End Select
Console.ReadLine()
```

   a. Case 1
   b. Case 2
   c. Case 3
   d. None of these

3. Modifying the system to meet the new laws is part of _____   (1)

   a. Coding
   b. Design
   c. Maintenance
   d. Debugging

4. A collection of interrelated components to work together is called a _____(1)

   a. Class
   b. Hardware
   c. System
   d. Fixing

5. Which one of the following is an end-user program?   (1)

   a. Translator

b. Debugger
c. Word processor
d. Compiler

6. What is displayed on the screen by the following code: (3)
```
DECLARE NUM1, NUM2 AS REAL
NUM1 = 10
NUM2 = NUM1 \ 2
IF  NUM2 * 5 > 30  OR  NUM1 > NUM2 * 3 THEN
        DISPLAY NUM2
ELSE
        DISPLAY NUM1
ENDIF
```
a. NUM2
b. NUM1
c. 5
d. 10

7. Write down exactly what will be displayed on the output screen .   (3)
```
Dim colour, code As String
code = "Z"
 IF code = "O" THEN
    colour = "Orange"
     ELSE
      If code = "B" THEN
        colour = "Blue"
         ELSE
         colour = "Colour not clear"
      ENDIF
  ENDIF
  Console.WriteLine (colour)
```

a. Orange
b. Blue
c. Red
d. Colour not clear

8. At which stage of the software development circle does an analyst spend most of time trying to understand the problem and the solution through interactions with system users and other members of the development team?   (1)

a. analysis
b design
c. coding
d. implementation

9. During _____ stage, errors are detected and corrected before the system is deployed.   (1)

  a. analysis

b coding

c. maintenance

d. testing

10. Which one of the following is not an example of application software?   (1)

a.Twitter

b. Windows 7

c. WhatsApp

d. Microsoft Word

11. What name is given to the instructions to personnel indicating how the processing must take place?   (1)

a. Algorithm

b. Pseudocode

c. Procedures

d. Processes

12. Computers understand _____ language.   (1)

a. Low level

b. Decimal

c. High level

d. Middle level

13. A(n) _____ is person who is responsible for the design and writing computer programs.   (1)

a. Writer

b. Programmer

c. User

d. Business Analyst

14. Which of the following tools is used for testing a solution?   (1)

a. Pseudocode

b. Trace table

c. IPO chart

d. Flowchart

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

```
DECLARE A ,B AS INTEGER
   FOR A= 6 TO 3 step -1
      B = A + 3
   NEXT A
DISPLAY A, B
```

a. A, B
b. 6 3
c. 2 6
d. 3 6

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

```
DECLARE X ,Y AS INTEGER
    FOR X= 3 TO 2 step -1
        Y = X + 3
    NEXT X
 DISPLAY Y, X
```

a. Y, X
b. 4 1
c. 5 1
d. 3 1

17. What value is displayed on the screen by the following code if input is: 5000   (5)

```
BEGIN

DECLARE quantityPurchased, totalAmount AS real

    ACCEPT quantityPurchased

        IF quantityPurchased >= 5000  THEN

                costPrice =150

        ELSE

                costPrice = 250

        ENDIF

        totalAmount = quantityPurchased * costPrice

        display totalAmount

END
```

a. 37500

b. 750000

c. 1250000

d. None of these

18. What value is displayed on the screen by the following code if inputs are: 75 63   (2)

```
BEGIN

 DECLARE mark1, mark2, averageMark AS real
```

```
    ACCEPT mark1

    ACCEPT mark2

    averageMark = mark1 + mark2/2

    DISPLAY averageMark

END
```

    a. 12
    b. 69
    c. 138
    d. None of these

19. Write down exactly what is displayed on the screen by this code: (2)
```
Declare j As Integer
j = 3
Do While j <= 10
   j = j * 4
Loop
Display "The value for j is "  j
```

    a. The value for j is j
    b. The value for j is 10
    c. The value for j is 12
    d. None of these

20. What is displayed on the screen by the following code: (5)
```
    DECLARE VAR1, VAR2 AS REAL
      VAR1 = 20
      VAR2 = VAR1 \ 4
      IF  VAR2 * 5 > 30  AND  VAR1 > VAR2 * 3 THEN
          DISPLAY "VAR1"
           ELSE
           DISPLAY "VAR2"
      ENDIF
```

a. VAR2
b. NONE OF THESE
c. 20
d. VAR1

QUESTION 3   **ESSAY QUESTION**   **[25 marks]**

Mr Price homes store is selling sheets at different prices depending on size as shown in the table:

SIZE	CODE	PRICE PER SHEET

DOUBLE	D	200
QUEEN	Q	250
KING	K	300

They want a program which will accept the size **(D, Q or K)** and the quantity of sheets wanted.
Use a **SELECT CASE STATEMENT** and **DO WHILE** to repeat the input until ZZZ is input for the size. Accumulate and count as required.
When there is no more input, display the following **(each with a meaningful message)**:

- the total quantity of double sheets sold
- the total number of queen sheets sold
- the total price paid for all of the king sheets sold

Do the following:

a. **Write an IPO**   [6   marks]

b. **Write the pseudocode for the program.**   [19 marks]