WOMEN'S UNIVERSITY IN AFRICA

Addressing gender disparity and fostering equity in University Education

FACULTY OF MANAGEMENT AND ENTREPRENEURIAL SCIENCES

BSc HONOURS DEGREE IN INFORMATION SYSTEMS

MAIN PAPER

IS315:   ADVANCED VISUAL BASIC/PYTHON PROGRAMMING

INTAKE 23: THIRD YEAR FIRST SEMESTER

TIME: 2 HOURS MORNING

INSTRUCTIONS TO CANDIDATES

Answer any **four** questions.

Question 1

a) State any three applications of python [3]

b) What are functions and how are they important? [6]

c) Using examples, write short notes on the following:

    i.   Interactive vs script mode; [6]

    ii.   Membership operators; and [4]

    iii.   Operator precedence [6]

Question 2

a) Explain the following using suitable examples:

    i.   pass keyword; [2]

    ii.   break statement; [4]

    iii.   continue statement; and [4]

    iv.   infinite loop [2]

b) Write a program that will prompt a user to enter a temperature as an integer. Your program should print "it is hot" if the temperature is over 100, "it is cold" if the temperature is under 60, and "it is just right" if the temperature is between 61 and 99 inclusive. The program should continue to ask for temperatures, and evaluates them as above, until the user enters a temperature of 0. [13]

Question 3

a) Differentiate tuples and lists [7]

b) Write a function to print all the letters from word1 that also appear in word2. [7]

c) Explain python built in exceptions. [6]

d) What is the output of the following program? Which concept is being depicted? [5]

```
def test_sum():
    assert sum([1, 2, 3]) == 6, "Should be 6"
if __name__ == "__main__":
    test_sum()
    print("Everything passed")
```

Question 4

a) What do you understand by default arguments? Give example. [6]

b) With a given integral number n, write a program to generate a dictionary that contains (i, i*i) such that *i* is an integral number between 1 and n (both included) and then the program should print the dictionary. In case of input data being supplied to the question, it should be assumed to be a console input. [6]

c) Demonstrate the use of Exception Handling in Python. [8]

d) Write a Python program to print out all even numbers from a given numbers list in the same order and stop the printing if any numbers that come after 237 in the sequence [5]

Question 5

a) Differentiate instance and class variables using suitable examples. [4]

b) Define a class named Shape and its subclass Square. The Square class has an init function which takes a length as an argument. Both classes have an area function which can print the area of the shape where Shape's area is 0 by default. [8]

c) Explain the various string operations in Python with suitable examples. [8]

d) Explain regular expressions. [5]

Question 6

a) Write a Python program that matches a string that has an *a* followed by one or more *b*'s.

[8]

b) Write a Python program to read a file line by line and store it into a list. [8]

c) Mention four benefits of using Python. [4]

d) Explain the use of modules and packages using relevant examples. [5]

END