CHUKA   **UNIVERSITY**

SUPPLEMENTARY / SPECIAL EXAMINATIONS

**FIRST YEAR EXAMINATION FOR THE AWARD OF
DEGREE IN BACHELOR OF SCIENCE IN COMPUTER SCIENCE**

COSC 120: FUNDAMENTALS OF COMPUTER PROGRAMMING

STREAMS: B.SC COMPUTER SCIENCE Y1S2

TIME: 2 HOURS

DAY/DATE: WEDNESDAY   18/11/2020   **2.30 P.M – 4.30 P.M.**

INSTRUCTIONS:
- *Answer Question 1 and Any Other Two.*
- *Do not write on the question paper.*

SECTION A: Answer all questions in this section

QUESTION ONE (30 Marks)

a) Differentiate between compiled programs and interpreted programs.   **[2 Marks]**

b) What is an identifier? Outline **THREE** basic rules of naming identifiers.   **[4 Marks]**

c) A program is required that prints "PASS" if the score captured is above 40 and "FAIL" if otherwise
   i)   Write an algorithm for the problem described above.   **[3 Marks**]

   ii) Draw a flowchart for the algorithm.   **[4 Marks]**

   iii) Write a python program that solves the problem.   **[4 Marks]**

d) Describe ways by which input can be read in PYTHON.   **[2 marks]**

e) Explain the common types of programming errors.   **[3 Marks]**

f) Explain the aspects of a python function.   **[4 Marks]**

g) Outline any **THREE** properties of a good algorithm.   **[4 Marks]**

SECTION B (Answer any TWO questions from this section)

Question Two [20 marks]

a) Using functions, write a program that accepts any whole number from the user. The program then computes the square and reciprocal of the number and returns the result.
[**6 Marks**]

b) Outline any four features of python as a programming language. **[4 Marks]**

c) Differentiate between source code and object code. **[4 Marks]**

d) Outline the basic part of a high-level program. **[6 Marks]**

Question Three [20 marks]
a) Write a program that accepts a whole number and then determines whether the number is even or odd and returns the answer. [**6 Marks**]
b) Write a Python program that prompts a user to enter a name of a person and then print all the letters in the entered name. **[6 marks]**
c) Write a program that stores 5 integers into a list. **[4 marks]**
d) Write the syntax for *if ... else statement* decision making in Python. **[4 marks]**

Question Four [20 marks]
a) Discuss the difference between the **Do-While** and **While** loop controls and write an example program that implements either. **[6 marks]**

b) Draw a flowchart that explains the **if…else** selection construct. **[4 marks]**

c) Write a Python program which prints "Odd Number" if the int variable "number" is odd or "Even Number" otherwise. The program should prompt the user to enter the number.
[6 marks]
d) Explain the differences between *lists* and *tuples* data types in Python programming language. **[4 marks]**

Question Five [20 marks]
a) Outline the merits of dividing large programs into functions. **[4 marks]**

b) Outline the generic steps in any software development process**. [5 marks]**
c) A computer repair shop charges KSh. 100 per hour for labour plus the cost of any parts used in the repair. The minimum charge for any job is however Ksh. 150.
   i) Write a program that prompts for the number of hours worked and the cost of parts and displays the charge for the job. Use symbolic constants. **[6 marks]**

   ii) draw a flowchart for your program in i) above. **[5 marks]**

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