JARAMOGI OGINGA ODINGA UNIVERSITY OF SCIENCE AND TECHNOLOGY

SCHOOL OF INFORMATICS AND INNOVATIVE SYSTEMS

DEPARTMENT OF COMPUTER SCIENCE & SOFTWARE ENGINEERING

UNIVERSITY EXAMINATION FOR THE DEGREE OF BACHELOR OF SCIENCE IN

AGRIBUSINESS MANAGEMENT/SPATIAL PLANNING/LOGISTICS AND SUPPLY

CHAIN MANAGEMENT

1ST YEAR 2ND SEMESTER 2023/2024 ACADEMIC YEAR

MAIN CAMPUS/SIAYA CAMPUS/NAIROBI CAMPUS

COURSE CODE: ITB 9210

COURSE TITLE: FUNDAMENTALS OF PROGRAMMING

STREAM: AGRIBUSINESS MANAGEMENT/SPATIAL PLANNING/LOGISTICS AND SUPPLY CHAIN MANAGEMENT

DATE: 03/05/2024   **EXAM SESSION: 9.00 – 11.00 AM**

TIME: 2 HOURS

INSTRUCTIONS

1. **Answer Question 1 (Compulsory) and ANY other two questions**
2. **Candidates are advised not to write on the question paper**
3. **Candidates must hand in their answer booklets to the invigilator while in the examination room**

QUESTION ONE (30 MARKS)

a) A student who passes examinations and completes coursework and project satisfactorily is awarded a **pass**. If the course work and the project are unsatisfactory, the student is asked to **resubmit** the unsatisfactory work, as long as the exams have been passed. A student who fails the examinations is deemed to have failed the whole course unless both the course work and the project are completed, the student is allowed to **re-sit** the examination. Draw a decision table to represent the aforementioned logic. (10 marks)

b) Explain types of errors that a programmer might encounter when developing a program. (3 marks)

c) Draw a simple structure chart for a *Lipa MudogoMudogo* smart phone payment management system. (5 marks)

d) Using relevant application scenario, examples and descriptions Compare and contrast the following

    i. Procedural and procedural programming (3 marks)
    ii. Internet based programming and structured programming (3 marks)
    iii. Compiled and interpreted programing languages (3 marks)
    iv. High level and low-level programming languages (3 marks)

QUESTION TWO (20 MARKS):

Integrated development environment (IDE) is a software application that provides comprehensive environment for software development. Using an IDE of your choice discus how source codes are converted into Executable files systematically. (20 marks)

QUESTION THREE (20 MARKS):

You have been tasked to advice a logistics consultancy company on services digitization and automation. Using a program development life cycle framework discus, the systematic processes and deliverables for ensuring that a high-quality system that meets the company's digitization expectations id developed. (20 marks)

QUESTION FOUR (20 MARKS):

Using relevant illustrations, describe the following concepts as used in programming

a) Modular programming (5 marks)
b) Monolithic design (5 marks)
c) Bottom-up programming approach (5 marks)
d) Debugging (5 marks)

QUESTION FIVE (20 MARKS):

A student designed the following algorithm for developing a program to that will calculate the employee's retirement year.

```
Step 1: Start
Step 2: Declare variables
retirement_year,emp_age,retirement_age,current_yearStep 3: Read
variables emp_age,retirement_age,current_year
Step 4: if emp_age <= 0
            Print "Key in a
      valid input"Else if emp-age
      > 65
            Print "Should be retired already"
      Else
    retirement_year=(retirement_age-employee_age)+ current_year
      End if
  Step 5: Display retirement_year
  Step 6: Stop
```

a) Interpret the algorithm in a statement for a novice person to understand (5 marks)
b) Draw a flow chart to represent the logic above. (10 marks)
c) Explain the term requirement specification in program development (5 marks)