**BANJO OLADELE SAMUEL.**

**1.4**

Fill in the blanks in each of the following statements:

A) The logical unit that receives information from outside the computer for use

by the computer is the **input unit**.

B) The process of instructing the computer to solve a problem is called

**programming**.

C) **Assembly language** is a type of computer language that uses English like

abbreviations for machine-language instructions.

D) **Output unit** is a logical unit that sends information which has already been

processed by the computer to various devices so that it may be used outside

the computer.

E) Me**mory unit** and **Secondary memory** are logical units of the computer that

retain information.

F) **Arithmetic logic unit** is a logical unit of the computer that performs

calculations.

G) **Central processing** is a logical unit of the computer that makes logical

decisions.

H) **High level languages** are most convenient to the programmer for writing

programs quickly and easily.

I) The only language a computer can directly understand is that computer’s

**machine language**.

J) **Central processing** unit is a logical unit of the computer that coordinates the

activities of all the other logical units.

**1.5**

Fill in the blanks in each of the following statements:

A) **Java** is a platform independent programming language that was built with

the objective of allowing programs to be written once and then run on a

large variety of electronic devices without modification

B) **JavaEE (Enterprise Edition)**, **JavaME**

**(Micro Edition)** and **JavaSE (Standard Edition)** are the names of the three editions of Java that can be used to build different kind of applications

C) **Bandwidth** is the information-carrying capacity of communication lines,

and has rapidly increased over the years and become more affordable. Its

availability is a cornerstone for building applications that are significantly

connected.

D) A(n) **assembler** is a translator that can convert early assembly-language

programs to machine language with reasonable efficiency

**1.6**

Fill in the blanks in each of the following statements:

A) Java programs normally go through five phases—**Edit**, **Compile**, **Load**,

**Verify**, and **Execute**

B) A(n) **Integrated Development Enviroment (IDE**) provides many tools that

support the software development process, such as editors for writing and

editing programs, debuggers for locating logic errors in programs, and

many other features.

C) c) The command java invokes the **Java Virtual Machine**, which executes

Java programs.

D) A(n) **Virtual Machine** is a software application that simulates a computer,

but hides the underlying operating system and hardware from the programs

that interact with it.

E) The **Class Loader** takes the .class files containing the program’s bytecodes

and transfers them to primary memory.

1. The **Verifier** examines bytecodes to ensure that they’re valid.

**1.7**

Explain what a just-in-time (JIT) compiler of Java does.

A just-in-time (JIT) compiler is a component of the Java Virtual Machine

which compiles Java bytecode into machine code or native code at runtime which means that the same Java program can run on different hardware platforms without requiring any changes to the code. To optimizes the performance of Java programs, It works by analyzing the Java code and identifying parts of the code that are

frequently executed

**1.8**

One of the world’s most common objects is a wrist watch. Discuss how each of

the following terms and concepts applies to the notion of a watch: object,

attributes, behaviors, class, inheritance (consider, for example, an alarm clock),

modeling, messages, encapsulation, interface and information hiding.

Watches are part of human daily activities for checking time and date and sometimes pole(N or S). While some are analog, some are digital other could be 1.8said to be binary .

As an Object , before any inventory or innovatory is done, the design drawing is very essential which help in mapping out different section of the design then we work on the behaviour just according to the class and methods. The behaviour can be said to be determinate of the Class which contains every methods used which alters the behaviour. Wristwatches are inherited just like other objects are invented because several other wristwatches are created with the same class but might be upgraded with some other beautiful and sweet features which might also do with modeling aspect of the shape and handler(leather or rubber) while we also can pass some special message(s) or task(s)to it(like, reading number of walks, beeping on every hour mark). We also need to encapsulate the information or design information from other devices or competitor(just like the Mac OS, Microsoft Windows unlike the open source Linux).

**JAVA COMPILATION**

In Java, the compiler translate the sourcecode into bytecode **because the source code are not in their executable form which the computer only understand, which the JVM (Java Virtual Machine) then executes at runtime**.

**JDK(Java Development Kit** ) is a software development environment used for developing Java applications and applets. It includes the Java Runtime Environment (JRE), an interpreter/loader (Java), a compiler (javac), an archiver (jar), a documentation generator (Javadoc), and other tools needed in Java development.

**JDK** (Java Development Kit) is a Kit that provides the environment to **develop and execute(run)** the Java program. JDK is a kit(or package) that includes two things

* Development Tools: to provide an environment to develop your java programs
* JRE: to execute your java program.

**WHILE**

**JRE** (Java Runtime Environment) is an installation package that provides an environment to **only run(not develop)** the java program(or application)onto your machine. JRE is only used by those who only want to run Java programs that are end-users of your system.

Even though the computer is said to be smart, A computer needs a compiler because the computer only understand it machine language built in bits (0s and 1s) and since we human deals with High level language of input it need a compiler to help translate to what it understand. A compiler is said to be reliable because it translate all source code all at once.

The Summary of the Chapter 1.

The chapter with developments in the computer field. The various editions of Java i.e standard, enterprise and micro. The evolution of computer software and hardware and the various logical units of the computer which include the input, output, arithmetic and logical, memory, central processing and secondary storage units alongside their functions. The chapter also speaks about how data processed by a computer forms a hierarchy, from bits to character to fields to records to files to database to big data. We move to the various languages programmers write instructions in. This includes the machine language that the computer understands on its own and the assembly and high level language for which it requires intermediate translation steps through the assembler and compiler respectively. Introduction object oriented programming was done using an automobile as an example. Different concepts in OOP such as class, methods, instantiation, reuse, attributes, encapsulation, inheritance, interfaces, object oriented analysis and design, modeling and the use of the unified modeling language were discussed. There are various operating systems for personal computers which include Windows, MacOS which are proprietary operating systems and Linux which is open source. Android and IOS for smartphones and for some other devices such as healthcare devices, game consoles, NASA satellites, smart watches. Also there are various programming languages, some are object oriented while some are not. Some are also used for other paradigms of programming such as Functional programming, structured programming, procedural programming. Java language is a C++based object-oriented programming language developed by James Gosling that writes programs that will run on a great variety of computer systems and computer-controlled devices. The Java development environment is where we create and execute Java applications. This process occurs in five phases through certain commands they include; edit, compile, load, verify and execute. Only through these processes can the Java application be executed..