Chapter 1 Questions and Answers

* 1. What is Hardware and Software?

Hardware consists of the physical components of a computer(drives, cpu, memory, mobo) and software consists of the programs, applications etc which the hardware runs.

* 1. List 5 major components of a computer

CPU, Motherboard, HDD, SDD, RAM, Fan, PSU, GPU

* 1. What does the acronym CPU stand for?

Central processing unit

* 1. What unit is used to measure CPU speed?

Hertz

* 1. What is a bit? What is a byte?

Bits are binary digits(0’s and 1’s). Bytes are the minimum storage unit and consist of 8 bits.

* 1. What is memory for? What does RAM stand for? Why is memory called RAM?

Memory is used to store data. RAM stands for Random Access Memory. Memory is called RAM because the data which is considered in “memory” is not stored permanently.

* 1. What unit is used to measure memory size?

Memory is measured in bytes, typically GB/MB

* 1. What measure is used to measure disk size?

Gigabytes(GB)

* 1. What is the primary difference between memory and a storage device?

Memory (RAM) is a volatile form of storage where data is gained and lost rapidly. A storage device is a more permanent means to store data.

* 1. What language does the CPU understand?

The CPU understands only machine language (1’s and 0’s)

* 1. What is an assembly language?

Assembly is a slightly higher language than machine language, and uses short phrases to perform functions which translate down into binary

* 1. What is an assembler?

An assembler translates assembly-language into machine code

* 1. What is a high level programming language?

A high level language is a language which is closer to spoken word, such as English, which serves to bridge the gap between humans and cpu’s

* 1. What is a source program?

A program written in a high level language

* 1. What is an interpreter?

An interpreter reads one line of source code and translates it into machine code and then executes the code right away

* 1. What is a compiler?

A compiler translates an entire source code file into machine language and then executes it

* 1. What is the diff. between an interpreted language and a compiled language?

Compiled languages create files which are interpreted by the virtual machine where interpreted language source code files typically are the executable.

* 1. What is an operating system? List some popular Operating Systems.

An operating system is the most important program that runs on a computer. An OS manages/controls a computer’s activities

* 1. What are the major responsibilities of an Operating System?

The major tasks of an operating system are: controlling and monitoring system activities, allocating and assigning system resources, and scheduling operations

* 1. What are multiprogramming, multithreading and multiprocessing?

Multiprogramming allows multiple programs to run simultaneously while sharing the same CPU, Multithreading allows a single program to execute multiple tasks at the same time, and multiprocessing uses two or more processors together to complete subtasks in order to solve one larger task

* 1. Who invented Java? Which company owns Java now?

Java was invented by James Gosling and a team of developers from Sun Microsystems. It is now owned and maintained by Oracle.

* 1. What is a Java applet?

A java applet is a java program which runs in a browser

* 1. What programming language does Android use?

Android uses Java

* 1. What is the java language specification?

The java language specification is a technical definition of the rules, syntax and semantics of the java programming language

* 1. What does JDK stand for?

Java Development Kit

* 1. What does IDE stand for?

Integrated Development Environment

* 1. Are IDE’s different from languages from Java or are they extensions of Java?

IDE’s are neither, they are tools used to develop Java programs.

* 1. What is a keyword? List some java keywords

A keyword is a word that is reserved by the Java API and cannot be used for variable names, method names, etc. Some java keywords include static, public, private, main

* 1. Is Java case sensitive? What is the case for java keywords?

Yes, java is certainly case sensitive and all java keywords are lower-case.

* 1. What is a comment? Are comments ignored by the compiler? How do you denote a comment line and comment paragraph?

A comment is a documentation tool which is primarily made for human use. Comments are ignored by the compiler. Comments are denoted by // (single line) or /\* - \*/ (multiline)

* 1. What is the statement to display a String on the console?

System.out.print(String);

* 1. What is the java source filename extension, and what is the java bytecode filename extension?

Source – Program.java ; Bytecode – Program.class

* 1. What are the input and output of a java compiler?

A java compiler inputs a sourcecode file (.java) and outputs a bytecode file (.class)

* 1. What is the command to compile a java program?

javac

* 1. What is the command to run a java program?

java

* 1. What is the JVM?

Java Virtual Machine

* 1. Can Java run on any machine? What is needed to run Java on a computer?

Yes, java can run on any machine with a JVM

* 1. If a NoClassDefFoundError occurs when you run a program, what is the cause?

This error is caused by not having a bytecode file (.class) to run with the java command

* 1. If a NoSuchMethodError occurs when you run a program, what is the cause?

This error is caused by a lack of main method or an error in the main method header

* 1. What are syntax errors, runtime errors and logic errors?

Syntax – breaks rules of the java language; causes compilation error

Runtime – an error which causes a program not to execute properly or terminate abnormally

Logic – a mistake which causes a program not to work properly (hardest to debug)

* 1. Give examples of the three above errors.

Syntax – Using a java keyword to name a variable with

Runtime – Dividing by 0

Logic – Incorrectly inputing a mathematical formula

* 1. If you forget to put a closing quotation mark on a string, what kind of error will you get?

Syntax

* 1. If your program needs to read integers, but the user entered strings, an error would occur when running this program. What kind of error?

Runtime

* 1. Suppose you write a program for computing the area of a rectangle and instead it outputs the perimeter of a rectangle. What kind of error is this?

Logic