Question 1

b) A yielding thread tells the java virtual machine (JVM) that it is willing to let other threads be scheduled in its place.

yield() is basically a hint to the scheduler that the current thread is willing to yield its current use of the processor. The scheduler is free to ignore this hint. Yield is a heuristic attempt to improve relative progression between threads that would otherwise over-utilize a CPU.

Syntax:

```
public static native void yield()
```

If any thread executes the yield method, the thread scheduler checks if there is any thread with same or higher priority than the current running thread. If the scheduler finds any such thread then it moves the current thread to runnable state and assigns processor to the other thread. If not, then the current thread keeps executing.

c) Errors are exceptional scenarios that are out of the scope of the application and it is not possible to ~~as~~ anticipate and recover from them, for example, hardware failure, JVM crash or out of memory error. Some of the most common errors are OutOfMemoryError and StackOverflowError.

Exceptions and Errors are both subclasses of the Throwable class. Errors mostly occur during runtime and they belong to an unchecked type.

Exceptions are variations from normal flow of a program and they can occur during runtime or compile time. Unlike Errors, Exceptions are recoverable using try, catch and throw keywords. Exceptions again, are divided into two categories - checked and unchecked exceptions. Exceptions are mostly caused due to bad programming practices.

d) Daemon threads are low-priority threads that provide support to user ~~defined~~ threads. These threads can be user-defined or System-defined as well. Garbage Collection thread is one of the system generated daemon threads that runs in the background. Daemon threads exist in the JVM until all the other user threads finish their execution. When no other thread is running, JVM automatically terminates daemon thread.

In Java, void setDaemon(boolean status) method is used to create the current thread as a daemon thread. For example,

Thread1.setDaemon(true)

↙ Current Thread Object

↘ If status is true it means current thread is set to daemon

2) StringBuilder class is used to represent a mutable string of characters. Mutable means a string which can be altered. String objects are immutable while StringBuilder is a mutable string type.

StringBuilder does not create a new modified instance of the current String object but does the modifications in the existing String object.

Again on the other hand, immutable objects have some advantages too. String objects can be used across threads without the fear of synchronization problems, while ~~String~~ StringBuilder is going to cost performance in a multi-threaded environment.