Recap SW 8
Shell USB&UART Mem&Queue

Questions:

1. What is the advantage of using USB as a virtual UART serial connection (OpenSDA and USB CDC) over a direct USB connection to a USB port of the MCU ?

2. What is the meaning of an asynchron serial protocol ?

3. As which device class does the Freedom board enumerate at the PC, and what is the purpose of it?

4. What's the command parser table ?

5. What's the difference between Memory Scheme 1 and 2 ?

6. What is Queue good for ?

7. What is the difference between *xQueueReceive()* and *xQueuePeek()* ?

Answers:

1. USB is a much more complex protocol, and therefore, has a bigger overhead. If the USB performance is not needed, a simpler UART connection is more efficient. At the Freedom board, there is an extra MCU to convert the USB to a UART protocol. This means that there is an extra MCU to take over the USB overhead.

2. Serial means that it sends the data bits after bits on a single data line (as a sample Rx or Tx line). Asynchron means that there is no clock supported to read the data. The start of the data has to be detected by the protocol (start bits, stop bits).

3. CDC (Communication Device Class), the PC opens a virtual COM port for the device. This enables to have a connection, which acts like a UART connection. Furthermore, it also enumerates as Mass Storage Device, this mode can be used to update the firmware.

4. It's a list with function pointers. In this list the parser choses the method which is going to be executed.

5. Memory Scheme 1 only allocates Memory. It's not possible to delete Tasks. With Scheme 2 it's possible to free space and reuse. There would be another Scheme where you can merge freed blocks.

6. A: It manages the access of information between multiple processes (tasks).

7. *xQueuePeek()* only checks if there is an item in the queue. *xQueueReceive()* does remove the

   item.