Q1: {{6/6}}
a) 255 * (100 + 1) * (1/8e6) = 0.003219375 seconds or 3.219 ms {{2}}

b)
(8e6) / ((2^16 - 1) * (2^16 - 1 + 1)) = 0.0018626 Hz or 1.863 mHz {{1}}
We also do have a 32-bit timer which results in:
(8e6) / ((2^32 - 1) * (2^16 - 1 + 1)) = 2.84217094e-8 Hz or 28.42 nHz
Either of the above will be fine.

c)
8e6 / (1024 * (780 + 1)) = 10 Hz {{1}}

d)
(PSC + 1) = 8e6 / (2 * 5119) = 781
Hence, PSC = 780 {{1}}

e)
No, an overflow will only trigger an interrupt request if the UIE (Update interrupt enable) bit in the TIMx_DIER register is set. {{1}}

Q2: {{6/6}}
a) - configuring individual interrupt priority. - masking or unmasking individual interrupts.
{{2}}

b) bit 28 {{1}}

c) 0x0000 00A4 {{1}}

d) When the special value in the LR is moved into the PC register, this triggers a return. A return involves popping all of the registers which had been previously saved to the stack in the form of a stack frame back to the CPU.
One of the registers is the PC which causes the CPU to go back to executing what it was executing before the IRQ. {{2}}

Q3: {{3/3}}
A makefile is a set of rules describing how a project is built. These rules explain which files depend on which other files, and contain the commands which must be run to build the files.

Makefiles allow for an elegant and scalable way of specifying how projects are built. They allow for detecting which files have been modified since the last build and hence doing the minimum amount of recompiling to rebuild the project. {{3}}

{{15/15}}