SC2107 Lab1 Assignment Sheet (to be submitted to NTULearn before next lab)

Name: Lab Group: Date:

1. Section 7.4. Write one C statement to clear bit 7 and 5 of P1SEL0 register, keeping the rest of the bits in the register unchanged.
2. Section 7.4. Write C statement(s) to extract bit 4 and 3 of variable ‘x’ and right align these two bits. Masked off all other bits in variable ‘x’. e.g. if ‘x’ has a value 1101 0111b initially, it should have a value of 0000 0010b after executing the C statement.
3. Section 7.4. Why do we need to declare the P1IN register, the register that contains the status of the processor Port1 GPIO input pin logic with a ‘volatile’ keyword qualifier?
4. Section 7.5. Why do we use SDIV instead of UDIV when calculating the Distance D? Or does it really matter whether SDIV or UDIV is used for this case?
5. Section 7.5. What is saved into the LR register when the calling routine calls “BL Convert”? What command is used to return from the sub-routine to the calling routine?
6. Section 7.6. If a function has 4 input parameters, which registers does the calling routine used to pass these parameters to the function according to AAPCS?
7. Section 7.6. What data content is loaded into R1 by the instruction “ldr r1, [pc, #0x2e4]”? Please give a qualitative description of the content loaded to R1 and not the value you see in CCS register window.
8. Section 7.7. The Memory Section “MAIN” correspond to the On-Chip Flash Memory in MSP432. How much on-chip flash memory is available for future code development? Cut and paste the screen shot of the relevant content in the map file and highlight where you extract your answer from. Hint: Check the map file.
9. Section 7.7. Which software section is program code allocated to by default? Which file consumes the largest code size in this project? Hint: check the map file.
10. Section 7.7. From the map file, what is the starting address of Port2\_Init()? Compare with the address you see in the Disassembly Window, are they the same? If not, why?