8.3.
(a) R1
(b) R0
(c) R3
(d) R7

8.11
16
x400F

9.11
Interrupt-driven I/O. It allows the processor to focus on executing other tasks while waiting for I/O interruption. With interrupt-driven I/O, the processor is interrupted only when I/O operation is needed, whereas with polling, the processor constantly checks the status of the I/O device, which decrease the efficiency.

9.16
a. 256. Because the addresses of trap service routines program are stored in x0000~x00FF.
b. Because PC is stored in R7 before the service routine, and it must rely on RET to go back to the original address. Meanwhile, BR instruction may fail to return to the original address due to its offset mode.
c. 4: pushing PSR in stack, pushing PC in stack, popping PSR and popping PC.

9.26.
Because the address in R7 is rewritten when jumping to the second subroutine B.

9.28.
a. TRAP x72
b. Yes, since R7 is stored properly and it contains all functions including reading and showing the character.

9.33
a. Set KBSR in x4000 and print 2 in screen over and over again.
b. Print the character stored in KBDR twice.
c. Print the character typed for two times instead printing 2 repeatedly, followed by printing 2 repeatedly again.
d. The digit typed may be the same as the digit shown before(2).