## 3.1 Solution

To ensure that the given data are read only once.

## 3.3 Solution

A subroutine is called by a program instruction to perform a function needed by the calling program. An interrupt-service routine is initiated by an event such as an input operation or a hardware error. The function it performs may not be at all related to the program being executed at the time of interruption. Hence, it must not affect any of the data or status information relating to that program.

## 3.6 Solution

Setting the interrupt-enable bit in the PS last ensures that the processor will not be interrupted before it completes the initialization of all interrupts.

# 输入输出部分补充题

Three devices, A, B, and C, are connected to the bus of a computer. I/O transfers for all three devices use interrupt control. Interrupt nesting for devices A and B is not allowed, but interrupt requests from C may be accepted while either A or B is being serviced. Suggest different ways in which this can be accomplished in each of the following cases;

(a) the computer has one interrupt-request line

(b) two interrupt-request lines, INTR1 and INTR2, are available, with INTR1 having higher priority.

# 输入输出部分补充题

(b) two interrupt-request lines, INTR1 and INTR2, are available, with INTR1 having higher priority.

Solution:

(a) Interrupts should be enabled, except when C is being serviced. The nesting rules can be enforced by manipulating the interrupt-enable flags in the interfaces of A and B.

(b) A and B should be connected to INTR2, and C to INTR1.

When an interrupt is received from either A or B, interrupts from the other device will be automatically disabled until the request has been serviced. However, interrupt requests from C will always be accepted.