**ARM Architecture**

**Assignment -2**

**1)** Conditional execution is done with the help of IT instruction to reduce the number of

branch instructions in code.

IT instruction will make the instructions following it to be conditional (max of 4

instructions). The instructions in the IT block, including any branches, must specify the

condition in the {*cond*} part of their syntax.

Ex: ITE LT

The above instruction will have two conditional instructions. One for if condition and other

for else condition. The if instruction is executed if lesser than condition is satisfied and else

is executed if logical inverse of LT i.e., greater or equal to is satisfied.

In the given program segment

ITTTE LT; or N! = V  
 MOV R3, #0x100  
 MOV R8, #0x200  
 MOV R7, #0x200  
 MOV R6, #0x200

There are three if then instructions and one else instruction and the condition to be

checked is LT.

But none of the instructions following ITTTE have the condition part mentioned. All the

four instructions are unconditional instructions. Hence there is a compiler error saying

that the instructions condition part is not consistent with ITTTE instruction.

“Then instructions” have to have conditions same as ITTTE instruction whereas “else

instruction” should have inverse condition GE mentioned.

**Corrected part:-**

ITTTE LT ; or N != V  
 MOVLT R3, #0x100  
 MOVLT R8, #0x200  
 MOVLT R7, #0x200  
 MOVGE R6, #0x200

**2)** ITTTE LT ; or N != V  
 ADDLT r3, r3,r8  
 MOVLT r4, #0  
 MOVLT R0, #1   
 SUBGE r3, r3, r3 ; Z != 1 or N == V

In the 2nd question the If Then Else part of the program is right.

3 if then and 1 else instructions with condition part correctly mentioned.