

6. Find out if the following instruction format is correct or not. If incorrect, point out the problem. (15 pts)

- (a) STMEB r1!, {r5, r4, r9}
- (b) ADD r3, r7, #257
- (c) SUB r12, r3, RRX #2
- (d) TST r4, r4, #2
- (e) MOV r3, cpsr

7. For the following C-expression: (13 pts)

```
while (r0!=r1)
    if (r0>r1) r0=r0-r1;
    else r1=r1-r0 ;
```

- (a) What's the function this code try to implement? (3 pts)
 - (b) Write down the corresponding ARM code without using the conditional execution. (But you can still use conditional branches.) (5 pts)
 - (c) Write down the corresponding ARM code using the minimum number of instructions. (5 pts)
8. Implement the following C-subroutine using ARM assembly language based on the APCS rule. (12

pts)

```
prob9(int a, b) {
    int i;
    for (i=a; i<b; i++)
        printf("%d x %d=%d \n",i, i, ixi);
}
```