

## CSC 301 - November Examinations 2009

Some sample programs that may be of use in understanding or testing the assembler extensions. Take care - these may assemble "correctly" but still yield incorrect results!

```

; 201.ASM - Question B7
; This is an introductory comment
; extending over a few lines before
; the program code actually starts
BEG
NOP
HLT
END
; not quite the final comment
; because there is still more to say

; 202.ASM - Question B8
LBI 23
BEG
LBI 23
OTI
LBI 23
HLT
END
; error - duplicated label

; 203.ASM - Question B9
LDA A
ADD B
OTI
HLT
END
; A is never defined
; B is never defined

; 204.ASM - Question B10
LBI OTA
ADI PSH + POP
OTC
HLT
END
; Equivalent to LDI 27 (see table of opcodes)
; Equivalent to ADI 16 + 17
; unsigned 60

; 205.ASM - Question B11
CLA
DEC
OTI
OTC
INI
OTI
OTC
HLT
END
; signed -1
; unsigned 255
; try reading -600 or 600
; signed
; unsigned

; 206.ASM - Question B12
LBI 500
OTI
OTC
ADI 12 - 100
OTI
OTC
HLT
END
; signed ??
; unsigned ??
; signed ??
; unsigned ??

; 207.ASM - Question B13
LDA LIST
DS SIZE
LIST
SIZE
END
; Equivalent to LDA 3
; error - SIZE still unknown
; error - negative argument
```

```

        BEG          ; 208.ASM - Question B14
        LDI LIST    ; Equivalent to LDI 100
        BNZ ADD5    ; Equivalent to BNZ 110
        HLT
        ORG 100     ; shift assembly
LIST    DS 10      ; LIST occupies bytes 100 ... 109
ADD5    ADI 5      ; ADI is in byte 110
        OTC        ; unsigned 105
        HLT
        END

```

```

        BEG          ; 209.ASM - Question B15
        LDA LIST + 1 ; equivalent to LDA 10
        ADI 4 - LIST ; equivalent to ADI 251
        OTC        ; unsigned 95
        ADI - LIST + 20 ; equivalent to ADI 11
        OTC        ; unsigned 106
        HLT
LIST    DC 50      ; LIST is located at 9
        DC 100     ; LIST + 1 is located at 10
        END

```

```

        BEG          ; 210.ASM - Question B16
        LDI MAX     ;
        OTC        ; unsigned 50
CR      EQU 13
        LDI CR
        OTA
        LDI LF      ; IO.WriteLine() CR/LF
        OTA
LF      EQU 10
        LDI MAX + MAX
        OTC        ; unsigned 100
        HLT
MAX     EQU 50
        END

```