```
 .DATA

   SEG_TABLE DB 3 DUP(0)        ; To store digits: Hundreds, Tens, Units

   SEG_CODE DB 0C0H, 0F9H, 0A4H, 0B0H, 99H, 92H, 82H, 0F8H, 80H, 90H ; 0–9 7-seg code


 .CODE


 START:

   MOV AX, @DATA

   MOV DS, AX


   ; Initialize 8255: Port A = Input, Port B = Output, Port C = Input

   MOV AL, 10000010B      ; 82H: Group A port A input, port B output

   OUT 03H, AL          ; Control word to control register


MAIN_LOOP:

 ; Start ADC Conversion

 CALL START_ADC


; Wait for INTR (polling PC0 == 0)

WAIT_INTR:

 IN AL, 02H            ; Read Port C

 TEST AL, 01H           ; Check PC0 (bit 0)

 JNZ WAIT_INTR          ; Wait until INTR goes low (conversion complete)


 ; Read digital value from ADC (Port A)

 IN AL, 00H            ; Read ADC result

 MOV BL, AL             ; Save digital value
```

```
; Scale value (0–255) → (0–100)
; Result = (BL * 100) / 255
 MOV AX, 0
 MOV AL, BL
  MOV BH, 100
  MUL BH              ; AX = BL * 100
   MOV CX, 255
   DIV CL             ; AL = Scaled result (0–100)

    ; Extract digits for 7-segment display
     MOV BL, AL
     MOV AH, 0
      MOV AL, BL
      MOV BH, 10
      DIV BH          ; AL = Tens, AH = Units
      MOV SEG_TABLE+2, AH   ; Units
      MOV SEG_TABLE+1, AL   ; Tens

      MOV AL, BL
      MOV AH, 0
      MOV BH, 100
      DIV BH          ; AL = Hundreds
      MOV SEG_TABLE, AL     ; Hundreds

      ; Display on 3-digit 7-segment using multiplexing
      CALL DISPLAY_SEGMENTS

      JMP MAIN_LOOP
```

```
;-----------------------------------
; Start ADC Conversion
;-----------------------------------
START_ADC:
   ; WR signal via PC2 = 0 → 1 (simulated delay)
   ; Normally you'd pulse WR low then high
   ; Assuming auto-triggered by control word
   RET


;-----------------------------------
; Display SEG_TABLE (H, T, U) on 7-segment via Port B
;-----------------------------------
DISPLAY_SEGMENTS:
   MOV CX, 2000       ; Small delay loop
DISP_LOOP:
  ; HUNDREDS
  MOV SI, 0
 CALL SHOW_DIGIT


; TENS
MOV SI, 1
CALL SHOW_DIGIT


; UNITS
MOV SI, 2
CALL SHOW_DIGIT


LOOP DISP_LOOP
RET
```

```
;----------------------------------
; SHOW_DIGIT: Show one digit from SEG_TABLE[SI]
;----------------------------------
SHOW_DIGIT:
   ; Get value to display
   MOV AL, SEG_TABLE[SI]
   MOV BX, OFFSET SEG_CODE
   XLAT            ; AL = 7-seg code

   OUT 01H, AL       ; Send to Port B
   CALL SMALL_DELAY
   RET

 SMALL_DELAY:
   MOV DX, 1000
 DELAY_LOOP:
   NOP
   DEC DX
   JNZ DELAY_LOOP
   RET
```