Conditional

	Program A	Program B	Program C	Program D	Program E

a
if (p>q)
{ r
s
}
b
 	
translated as
a
Cmp p,q
JNG L1
r
s
L1: b
	.model small
	.code
	Mov AH,1
	Int 33
	Cmp AL,97
	JGE L1
	Mov DL,225
	Jmp L2
	L1:Mov DL,224
	L2:Mov AH,2
	Int 33
	Mov AH,76
	Int 33
	End
		Mov CL,100
		Mov BH,105
		Mov AH,2
		Mov DL,65
		Cmp CL,BH
		JG L1
		Add DL,1
		L1: Int 21h
		Stop
		END
		
		Stop means
		Mov AH,76
		Int 21h
			.model small
			.code
			Mov AH,2
			Mov DL,65
			Int 21h
			K:
			Mov AH,2
			Mov DL,66
			Int 21h
			Mov AH,76
			Int 33
			End K
				.model small
				.code
				Mov AH,2
				Mov DL,65
				L: Int 33
				Add DL,1
				Cmp DL,90
				JLE L
				Mov AH,76
				Int 33
				END
				o/p AB...Z
					.model small
					.code
					L1:
					Mov AH,1
					Int 21h
					Mov DL,AL
					Add DL,1
					Mov AH,2
					Int 21h
					Cmp DL,98
					JGE L1
					Mov AH,4ch
					Int 33
					END

Program A: reads a letter. It outputs is α if ASCII code of the letter is more than or equal to 97. Otherwise it outputs β. Input Y output β. c $\rightarrow \alpha$. JL, JLE, JG, JE, JNE are also conditional jump instructions.

Program B: The output is 'B'. Since 100<105. Hence JG does not perform jump.

Let us use BH=98 the output is 'A'. Since jump is performed hence 'B' is not added.

Let us use BH=130 the output is 'A' (not 'B'). Here 100>130 because A number greater than 127 is treated as negative number. Its value is obtained by subtracting 256 from it. 130 is 130–256= –126. and 100>–126. Replace JG by JA. 100<205 (unsigned JA, JB) 100 >205 (signed JG,JL)

Program C outputs only B. When "End K" is replaced by "End" then output is AB. End K makes a program to start from label K.

Program E: reads a letter and outputs its next letter. It is done till a capital letter (code<97) is input.

1. Write program, which reads a letter. It outputs α if ascii code of the letter is between 65 and 90. Otherwise it outputs β. Input 5 output β. C $\rightarrow \alpha$. c $\rightarrow \beta$. 2 $\rightarrow \beta$
2. Program reads a letter. It outputs α if ascii code of the letter is more than or equal to 97. β when between 65 and 96. γ when less then 65. F $\rightarrow \beta$. c $\rightarrow \alpha$. 5 $\rightarrow \gamma$

100>−126. Replace JG by JA. 100<205 (unsigned JA, JB) 100 205 (signed JG,JL)

Program C outputs only B. When "End K" is replaced by "End" then output is AB. End K makes a program to start from label K.

Program E: reads a letter and outputs its next letter. It is done till a capital letter (code<97) is input.

1. Write program, which reads a letter. It outputs α if ascii code of the letter is between 65 and 90. Otherwise it outputs β. Input 5 output β. C $\rightarrow \alpha$. c $\rightarrow \beta$. 2 $\rightarrow \beta$
2. Program reads a letter. It outputs α if ascii code of the letter is more than or equal to 97. β when between 65 and 96. γ when less then 65. F $\rightarrow \beta$. c $\rightarrow \alpha$. 5 $\rightarrow \gamma$
3. Read a letter. output α when ascii code of the letter is between 65 and 90 or between 97 and 122. Otherwise β. Input 5, [or { output β. Input c or C output α. [Hint: [=91 { =123].
4. Read two digits compute sum. Input 57 output 12. 24 $\rightarrow$ 6. (A) difference 57 $\rightarrow$ 2. 83 $\rightarrow$ 5.
5. Program to subtract the second digit from the first digit. 45 $\rightarrow$ -1. 93 $\rightarrow$ 6.
6. Program reads a digit and a letter. If letter is 'A' then double of the digit is outputted. If letter is 'B' then digit is incremented. Assume output is less than 10. 3A $\rightarrow$ 6. 4B $\rightarrow$ 5.
7. Read a letter(x) and a hex digit (y). Output is y^{th} letter after x. m5 $\rightarrow$ r. gC $\rightarrow$ s.
8. Read two letters. output first-second. Assume first is bigger and difference is less than 16 . ke $\rightarrow$ 6. uh $\rightarrow$ D.
9. Reduce the size of the example program(A) by removing Jmp L2(inefficient.) (A) Reduce size by using add.
10. Read two letters and print the letter with bigger ascii code. e.g. input HA output H. Input AH output H.
11. Read a letter. Output 'A' when sign(ascii+30)>100. 'B' otherwise. 2Deb $\rightarrow$ B GZa $\rightarrow$ A No JG,JL(use JA,JB) ? $\rightarrow$ B C $\rightarrow$ B
12. Read a letter. Output 'A' when unsign(ascii+30)>100. 'B' otherwise. 2D $\rightarrow$ B Gae $\rightarrow$ A No JA,JB (use JG,JL) ? $\rightarrow$ B C $\rightarrow$ A
13. Program to print (a) FEDCBA (b) AAAAAA (c) ABDGKP
14. Program reads a letter. It outputs A if ascii code of the letter is even. Otherwise B. 5 $\rightarrow$ B. D $\rightarrow$ A.
15. Reads two letters. It outputs A if ascii code of both letters is even. B when any is odd. 5D $\rightarrow$ B. Pd $\rightarrow$ A.
16. Read a letter. Print A if ascii is between 40-49, 60-69, 80-89, 100-109, 120-129. B is printed otherwise. e.g. for input C, U, i output A. For G, I, a, 5 output is B. [Caution: Input B output A, input 'a' output B]
17. Prints A if ascii is an even number between 40-49, 60-69, 80-89, 100-109, 120-129 or an odd number between 30-39, 50-59, 70-79, 90-99, 110-119. B is printed otherwise. Dc%05 output A. E1b6 output B.
18. Program to print 'C'. Use Int 21h once as first line of the program.