PART A)
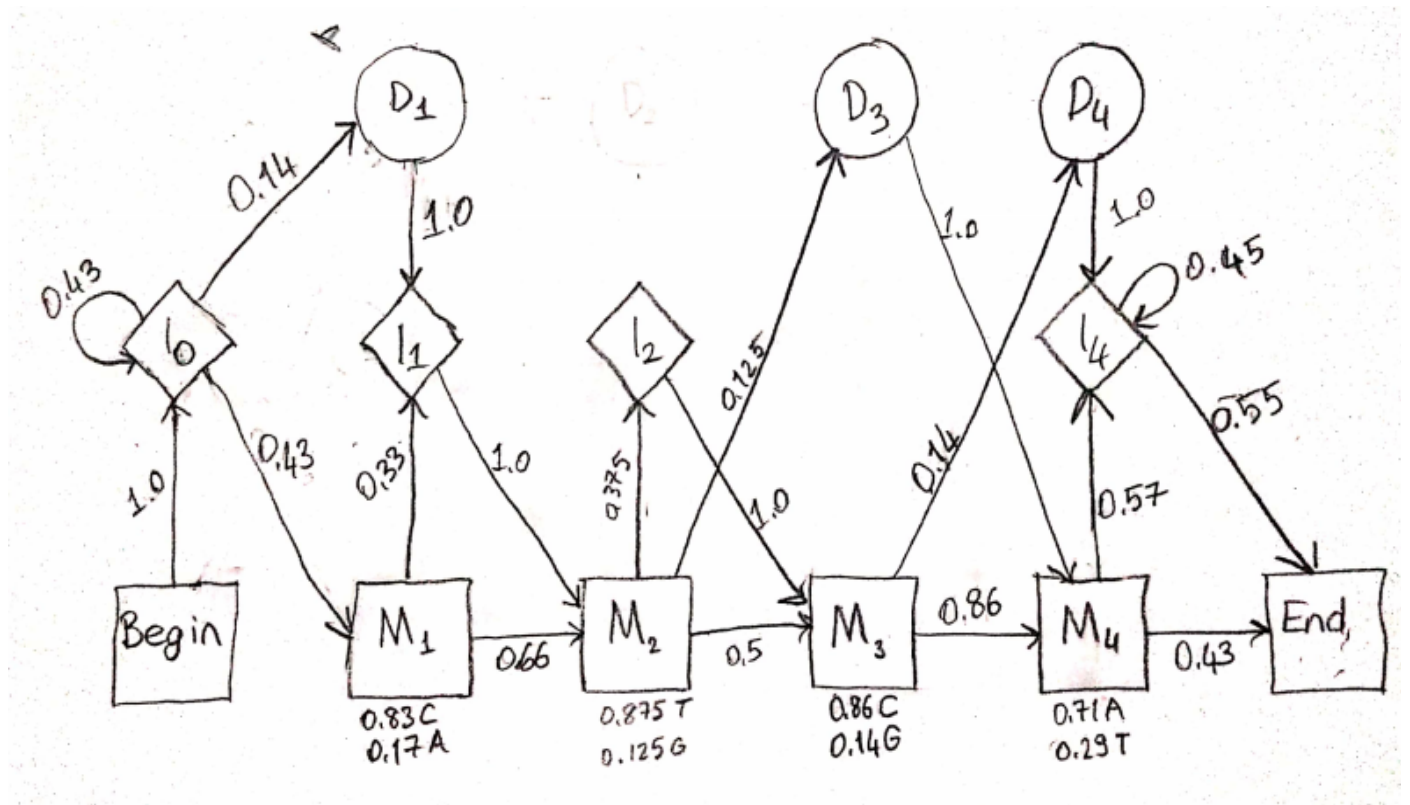
Seq1: Begin → I0→ I0 → D1→ I1→ M2→ M3→ M4→ I4→ End

Seq2: Begin → I0→ I0 → M1→ I1→ M2→ M3→ M4→ I4→ I4→ End

Seq3: Begin → I0→ M1 → I1→ M2→ I2→ M3→ M4→ End

Seq4: Begin → I0→ I0 → M1→ M2→ D3→ M4→ I4→ I4→ I4→ End

Seq5: Begin → I0→ D1 → I1→ M2→ M3→ M4→ End

Seq6: Begin → I0→ I0 → M1→ M2→ I2→ M3→ M4→ I4→ I4→ End

Seq7: Begin → I0→ I0 → M1→ M2→ I2→ M3→ M4→ End

Seq8: Begin → I0→ I0 → M1→ M2→ M3→ D4→ I4→ End

PART B)

	-	C	T	C	T	G	A
BEGİN	1.0	0.0	0.0	0.0	0.0	0.0	0.0
I0	0.0	1*0.25 =0.25	0.25*0.43 *0.25= 0.026	0.026*0.43 *0.25= 0.27E-2	0.27E-2*0.25*0.43= 0.29E-3	0.29E-3*0.25*0.43 =0.31E-4	0.31E-4*0.25*0.43= 0.33E-5
I1	0.0	0.0	0.035*0.25= 0.00875	0.36E-2*0.25* 1.0= 0.9E-3	0.0093*0.33*0.25= 0.77E-3	0.41E-3*0.25= 0.1E-3	0.43E-4*0.25= 0.11E-4
I2	0.0	0.0	0.0	0.0	0.375*0.25*0.0= 0.0	0.375*0.25*0.54E-2= 0.51E-3	0.375*0.25*0.96E-4= 0.9E-5
I4	0.0	0.0	0.0	0.0	0.0	0.0	0.53E-4*0.25= 0.13E-4
D1	0.0	0.25*0.14 = 0.035	0.026*0.14= 0.36E-2	0.27E-2*0.14= 0.38E-3	0.29E-2*0.14 = 0.41E-3	0.31E-3*0.14= 0.43E-4	0.33E-5*0.14= 4.62E-7
D3	0.0	0.125*0.0 = 0.0	0.125*0.0 = 0.0	0.125*0.0= 0.0	0.125*0.54E-2= 0.67E-3	0.125*0.96E-4= 0.12E-4	0.125*0.0= 0.0
D4	0.0	0.14*0.0= 0.0	0.14*0.0= 0.0	0.14*0.0= 0.0	0.14*0.0 = 0.0	0.14*0.38E-3= 0.53E-4	0.14*0.0 = 0.0
M1	0.0	0.43*0.0 = 0.0	0.43*0.25 *0 = 0.0	0.43*0.026 *0.83 =0.93E-2	0.43*0.93E-2*0= 0.0	0.0	0.43*0.31E-4*0.17 =0.23E-5
M2	0.0	0.0	0.0	0.03*0.125 *0.0= 0.0	0.93E-2*0.66*0.875 =0.54E-2	0.77E-3*0.125= 0.96E-4	0.0
M3	0.0	0.0	0.0	0.0	0.0	0.54E-2*0.5*0.14= 0.38E-3	0.0
M4	0.0	0.0	0.0	0.0	0.0	0.0	0.38E-3*0.86*0.71= 0.23E-3
END	0.0	0.0	0.0	0.0	0.0	0.0	0.23E-3*0.43= 0.99E-4

BEST PATH
 Begin → I0 →I0 → M1→ M2→ M3→ D4→ I4→ END
The probability associated with the best path is 0.99E-4

```
C   T   -   C   -   T   -   G   -   -   A   -
G   G   -   -   T   T   -   G   A   -   G   -
-   C   T   A   T   T   -   C   A   C   -   A
-   G   -   C   A   T   G   C   A   -   -   -
-   A   G   C   -   T   -   -   A   C   G   A
-   T   -   -   G   T   -   C   T   -   -   -
-   T   A   C   -   T   A   C   A   -   A   A
G   G   -   C   -   G   T   C   T   -   -   -
A   C   -   C   -   T   -   C   -   -   G   -
            *       *           *   *
```