

**CENG 465**  
**Introduction to Bioinformatics**  
**Assignment #1**

**Problem 1:**

Match score can be easily realised, since the first G-G matching results in 7 score. It shows that matching score is 7. After the third letters (M) of both sequences are matched, we can see that -4 gap penalty is applied for the M-A alignment and the M-G alignment results in -6 mismatch penalty.

**Match Score : 7**

**Mismatch : -6**

**Gap : -4**

	-	M	I	M	A	G	E	D	I	L
-	0	0	0	0	0	0	0	0	0	0
G	0	0	0	0	0	7	3	0	0	0
A	0	0	0	0	7	3	1	0	0	0
M	0	7	3	7	3	1	0	0	0	0
A	0	3	1	3	14	10	6	2	0	0
E	0	0	0	0	10	8	17	13	9	5
D	0	0	0	0	6	4	13	24	20	16
K	0	0	0	0	2	0	9	20	18	14

Alignment								
M	I	M	A	G	E	D	I	L
		M	A	-	E	D		

**Problem 2:**

	-	M	C	G	M	G	C	M	E	L
-	0	-4	-8	-12	-16	-20	-24	-28	-32	-36
G	-4	-3	-7	-2	-6	-10	-14	-18	-22	-26
M	-8	1	-3	-6	3	-1	-5	-9	-13	-17
C	-12	-3	10	6	2	0	8	4	0	-4
M	-16	-7	6	7	11	7	4	13	9	5
E	-20	-11	2	4	7	9	5	9	18	14
D	-24	-15	-2	1	3	6	6	5	14	14
L	-28	-19	-6	-3	3	2	5	8	10	18

Alignment									
M	C	G	M	G	C	M	E	-	L
-	-	G	M	-	C	M	E	D	L