1.

```
$DNA="AGTAGCTTA";

$DNA=~s\T\U\g;

print"$DNA/n";
```

2.

```
$DNA="ATGC";

$DNA=~tr/ATGC/TACG/;

print"$DNA\n";

$dna="atgctagctaatgccct";

$dna=~tr/atgc/ATGC/;

print"$dna\n";
```

3.

```
$dna="atgggggcccatgtcgtaccggggacactgggggggcaattgggaaaccccatgccccgtacgatcgattttgactttaa
acccccc";

$GC=($dna=~tr/gc//);

$percentage=100*($GC/length($dna));

print "The percentage of GC = $percentage % \n";
```

4.

```
$DNA="atgcgatgatgcccggttagacgatgggtacccgtacgcgggggtttacaacctgctagcatcgacgatgatgatgcat
gcatgtagtagctgcggcgttttttttttagaaaaaaaaaaaaagatcccctttttatgccgagttgcaaaatttagggccacacat
gatgacagatgacgggtgtgtgcccagtgggcacagtgtgccagtgcgtgacgatgcccagaaaagtgaaacgtgccaaaaaaaaa
";

$amino_acid="MGHVDYTRTLRVQLYDASRFHDGATAEQAGELHTVAFSKPAIADDIQKIVDTTAE
VLGKRYSVNVFSN";

$a=$DNA.$amino_acid;

print"$a";
```

5.

```
$DNA="ATGCATTGCCTAATGCGCTATCGATGCC";

$revcom=' ';

for ($position=length($DNA)-1; $position>=0; --$position) {

        $base=substr($DNA, $position, 1);
```

```
        if($base eq 'A') {
                $base = 'T';
        }elsif($base eq 'T') {
                $base = 'A';
        }elsif($base eq 'C') {
                $base = 'G';
        }elsif($base eq 'G') {
                $base = 'C';
        }
        $revcom .=$base;
}
print $DNA,"\n";
print $revcom, "\n";

exit;
```

6.

```
$protein= join"",qw(
MSLERRVVVLRAFGAELHLTDPAKGFQFSLQKAEELFNDTPNAFMPRQFENPANPKIHYETTGPEIW
RDSG
);
print $protein,"\n";
$hydrophobic=($protein=~tr/GAVLIPFMWC//);
$percentage=100*($hydrophobic/length($protein));

print "The percentage of hydrophobic residues = $percentage % \n";
exit;
```

7.

```
ATAGTTAGATGATAGGGTACCAGT
$trypsin='C:\Users\Admin\Desktop\Bio Perl\31.txt';
```

```
open(31,$trypsin);
@trypsin1=<31>;
print"@trypsin1\n";
```

8.

```
$pick="ATGC";
$PICK=<STDIN>;
chomp $pick;
if($pick=~ tr/ATGC//) {
        print"It is a DNAsequence";
}
else {
    print"It is not a DNA sequence";
}
$pick="RYS";
$PICK=<STDIN>;
chomp $pick;
if($pick=~ tr/ATGC//) {
        print"It is a DNAsequence";
}
else {
    print"It is not a DNA sequence";
}
```

9.

```
@array = ('Ecoli','Yeast','Clostridium phytofermentas','Carsonella rudii','Lactobacilus');
print"Type a organism name:";
my $pick = <STDIN>;
chomp $pick;
if (grep  {$_ eq $pick} @array) {
      print"\n $pick, found";
```

```
}

else {

  print"Not found";

}

exit;
```

10.

```
$DNA =
'AGTCTTATATAAATATATATATATATATATATATTTTAAAAATATATATATATATAAGGGCGATGAT
GC';

$DNA = uc $DNA;

print $DNA, "\n\n";

print " ENTER THE MOTIF : ";

$motif = <STDIN>;

chomp $motif;

$motif = uc $motif;

 if ($DNA =~/$motif/)

{ print "I found it";}

else

{print "I couldn't find";}

exit;
```

11.

```
$DNA="TAGTAGATGCGCGCTAGACGATGCGATGCTGATGCTAGCGCCCGTGTCG";

$cnt1=($DNA=~tr/A//);

$cnt2=($DNA=~tr/T//);

$cnt3=($DNA=~tr/G//);

$cnt4=($DNA=~tr/C//);

print("The count of A is:$cnt1\n");

print("The count of T is:$cnt2\n");

print("The count of G is:$cnt3\n");

print("The count of C is:$cnt4\n");
```

12.

```
$DNA = 'ATATTTTAATATCTGACTGCAGTC';

$position1 = 4;

$position2 = 15;

$base1 = substr($DNA, $position1, 1);

$base2 = substr($DNA, $position2, 1);

substr($DNA, $position1, 1) = $base2;

substr($DNA, $position2, 1) = $base1;

print "$DNA\n";

exit;
```

13.

```
@BASES = ('A' ,'T' ,'C' ,'G' ,'D' ,'E' ,'F','H' ,'I' ,'K' ,'N' ,'P' ,'Q' ,'R' ,'V' ,'W'
,'Y' ,'S');

for ( $i=0; $i<20; $i++ ) {

 print '>Random', "$i\n";

 for( $j=0; $j<100; $j++ ) {

 $r = $BASES[ int (rand 10)];

 print $r;

 print "\n" if ($j+1)%60 == 0 and $j;

 }

 print "\n";

}
```