**Examples with Solutions**

Given = Σ = {a, b}

1. Find out a regular expression for a language of all strings of length 1.

(a + b)

1. of length 3 staring with a.

a (a + b) (a + b)

1. Find out a regular expression for a language of all strings of odd length starting with a.

b\*ab\*((a + b)(a + b))\*

1. Find out a regular expression for a language of all strings containing at least 2 a’s.

(a + b)\*a(a + b)\*a(a + b)\*

1. Find out a regular expression for a language of all strings containing exactly 2 a’s.

b\*ab\*a b\*

1. Find out a regular expression for a language of all strings containing at most 2 a’s.

b\* + b\*ab\* + b\*ab\*ab\*

1. Find out a regular expression for a language of all strings having even no of a’s.

b\* + (b\*ab\*ab\*)\*

1. Find out a regular expression for a language of all strings having odd no of a’s.

b\*ab\*(b\*ab\*ab\*)\*

1. Find out a regular expression for a language of all strings having an odd no of a’s and beginning with an a.

ab\*(b\*ab\*ab\*)\*

1. Find out a regular expression for a language of all strings having an odd no of a’s and ending with an a.

(b\*ab\*ab\*)\*b\*a

1. Find out a regular expression for a language of all strings having an odd no of a’s beginning and ending with a.

a(b\*ab\*a)\*

1. Find out a regular expression for a language of all strings having an odd no of a’s or odd no of b’s.
2. Find out a regular expression for a language of all strings that starts and ends with double letters.

aa(a + b)\*bb + bb(a + b)\*aa+ bb(a + b)\*bb + aa(a + b)\*aa

1. Find out a regular expression for a language of all strings in which the third letter is b.

(a+b)(a+b)b(a+b)\*

1. Find out a regular expression for a language of all strings containing 3 or more letters.

(a+b)(a+b)(a + b)(a+b)\*

1. Find out a regular expression for a language of all strings containing an a and any number of b’s.

b\*ab\*