

Problem 1:

```
def func1(str_input):  
    expr = r"(A{2,5})"  
    str_output = re.search(expr, str_input)  
    return str_output
```

Problem 2:

```
def func2(str_input):  
    repl = "float"  
    expr = r"(\d*).(\d+)"  
    str_output = re.sub(expr, repl, str_input)  
    return str_output
```

Problem 3:

```
def func3(str_input):  
    repl = "float"  
    expr = r"(\d*).(\d+)"  
    str_output, numb = re.subn(expr, repl, str_input)  
    return numb
```

Problem 4:

```
def func4(str_input):  
    expr = r"(-?)(\d+)"  
    matched = re.findall(expr, str_input)  
  
    for i in matched:  
        sum += i  
        num += 1  
    avg = sum/num  
    return avg
```

Problem 5:

```
def func5(str_input):  
    str_output = re.sub(r"EE364", "EE461", str_input, 1)  
    return str_output
```

Problem 6:

```
def func6(str_input):  
    valid=0  
    expr = r"(0{0,2})(\d+).(0{0,2})(\d+).(0{0,2})(\d+).(0{0,2})(\d+)"  
    str_output = re.match(expr, str_input)  
    for(i=1;i<=4;i++):  
        if(int(str_output.group(i)) <= 255):  
            valid = 1  
        else:  
            valid = 0  
        if(!valid):  
            return 0  
    return valid
```

Problem 7:

- i) Perform non-case sensitive matching for 'e'.
- ii) Checks whether input has 'is a' in it somewhere.
- iii) It will generate an error because no search/find pattern has been assigned to group 2 or Second.
- iv) Searches input for 'I' exactly once, 'like' for more than 10 times and 'you' for 1 or 2 times.