Ans1:- import re

```
    # Define the regex pattern to match only a-z, A-Z, and 0-9
    pattern = r'^[a-zA-Z0-9]+$'

    if re.match(pattern, input_string):
        return True
    else:
        return False
print(contains_only_allowed_characters("abcXYZ123"))
print(contains_only_allowed_characters("abcXYZ123!"))
print(contains_only_allowed_characters(" "))
print(contains_only_allowed_characters(""))
print(contains_only_allowed_characters("abcXYZ123_"))
```

Ans2:- ^ab*$

Ans3:- ^ab+$

Ans4:- ^ab?$

Ans5:- ^ab{3}$

Ans6:- import re

```
# Define the pattern
pattern = r'^ab{2,3}$'

# Test strings
test_strings = ["abb", "abbb", "ab", "abbbb", "a", "b"]

# Check each string against the pattern
for s in test_strings:
    if re.match(pattern, s):
        print(f"String '{s}' matches the pattern.")
```

```
    else:
        print(f"String '{s}' does not match the pattern.")
```

Ans7:-

```
import re

pattern = r'^a.*b$'

test_strings = ["a", "ab", "axb", "a123b", "atestb", "abc", "b", "abab"]

for s in test_strings:
    if re.match(pattern, s):
        print(f"String '{s}' matches the pattern.")
    else:
        print(f"String '{s}' does not match the pattern.")
```

Ans8:-

```
import re

pattern = r'^\w+'

test_strings = ["Hello", "123abc", "_underscore", " world", "123 456", "!@#$", ""]

for s in test_strings:
    if re.match(pattern, s):
        print(f"String '{s}' matches the pattern.")
    else:
        print(f"String '{s}' does not match the pattern.")
```

Ans9:-

```
import re

pattern = r'\w+$'
```

```
test_strings = ["world", "123abc", "_underscore", "Hello ", "123 456", "!@#$", ""]

for s in test_strings:
    if re.search(pattern, s):
        print(f"String '{s}' matches the pattern.")
    else:
        print(f"String '{s}' does not match the pattern.")
```

Ans10:-

```
import re

# Sample text
sample_text = '01 0132 231875 1458 301 2725.'

# Define the pattern to match exactly 4 digits
pattern = r'\b\d{4}\b'

# Use re.findall to find all matches in the sample text
matches = re.findall(pattern, sample_text)

print(matches)
```