REGULAR EXPRESSION

**Regex Character Classes**

| **No** | **Character class** | **Description** |
| --- | --- | --- |
| 1 | [pqr] | p,q or r |
| 2 | [^pqr] | Negation: Any character other than p,q, or r |
| 3 | [a-zA-Z] | Range:a through z or A through Z, inclusive |
| 4 | [a-d[m-p]] | Union:a through d, or m through p: [a-dm-p] |
| 5 | [a-z&&[def]] | Intersection:d, e, or f |
| 6 | [a-z&&[^bc]] | Subtraction:a through z, except for b and c: [ad-z] |
| 7 | [a-z&&[^m-p]] | Subtraction: a through z, and not m through p: [a-lq-z] |

**Regex Quantifiers**

Quantifiers are used to specify the number of times the character will occur in the regex.

**The following table shows the common regex quantifiers used in Java.**

| **No** | **Regex quantifier** | **Description** |
| --- | --- | --- |
| 1 | x? | x appears once or not at all |
| 2 | x+ | x appears one or more times |
| 3 | x\* | x occurs zero or more times |
| 4 | x{n} | x occurs n times |
| 5 | x{n,} | x occurs n or more times |
| 6 | x{y,z} | x occurs at least y times but less than z times |

**Regex Meta Characters**

The Metacharacters in regex work as shorthand codes. These codes include whitespace and non-whitespace character along with other shortcodes.

**The following table lists the regex Meta characters.**

| **No** | **Meta Characters** | **Description** |
| --- | --- | --- |
| 1 | . | Any character (may or may not match terminator) |
| 2 | \d | Any digits, [0-9] |
| 3 | \D | Any non-digit, [^0-9] |
| 4 | \s | Any whitespace character, [\t\n\x0B\f\r] |
| 5 | \S | Any non-whitespace character, [^\s] |
| 6 | \w | Any word character, [a-zA-Z\_0-9] |
| 7 | \W | Any non-word character, [^\w] |
| 8 | \b | A word boundary |
| 9 | \B | A non-word boundary |

**Q #1) What is in a Regular Expression?**

**Answer:** A **Regular Expression** commonly called regex is a pattern or a sequence of characters (normal or special or Meta characters) that is used to validate an input string.

**Q #2) What is the significance of the Matcher class for a regular expression in Java?**

**Answer:**The matcher class (java.util.regex.Matcher) acts as a regex engine. It performs the matching operations by interpreting the Pattern.

**Q #3) What is the pattern in Java?**

**Answer:**The package java.util.regex provides a Pattern class that is used to compile a regex into a pattern which is the standard representation for regex. This pattern is then used to validate strings by matching it with the pattern.

**Q #4) What is B in a regular expression?**

**Answer:**The B in regex is denoted as \b and is an anchor character that is used to match a position called word boundary. The start of the line is denoted with a caret (^) and the end of the line is denoted by a dollar ($) sign.

**Q #5) Is pattern thread-safe Java?**

**Answer:**Yes. Instances of the Pattern class are immutable and safe for use by multiple concurrent threads. But the matcher class instances are not thread-safe.