Model A:

1) What are the two main public classes in the java.util.regex package? Describe the purpose of each. *(2 marks)*

- Pattern instances are compiled representations of regular expressions.
- Matcher instances are engines that interpret patterns and perform match operations against input strings.

2) Write regular expression for the following:

a) Email address of the form (username @ ISP.anything(.anything)<-any number of times) . *(3 marks)*

(\w+)@(\w+\.)(\w+)(\.\w+)*

b) Binary numbers that are a multiple of four. *(2 marks)*

((0|1){4})+

c) Floating point numbers. *(3 marks)*

[-+]?([0-9]*\.[0-9]+|[0-9]+) or
[-+]?[0-9]*\.?[0-9]+

Model B:

1) Here are three predefined character classes: \d, \s, and \w. Describe each one, and rewrite it using regular expression classes. *(2 marks)*

\d	Matches any digit.	[0-9]
\s	Matches any white space character.	[\t\n-x0B\f\r]
\w	Matches any word character.	[a-zA-Z_0-9]

2) Write regular expression for the following:

a) Floating point numbers. *(3 marks)*

[-+]?([0-9]*\.[0-9]+|[0-9]+) or
[-+]?[0-9]*\.?[0-9]+

b) All words in which "a" appears tripled. This means that every clump of a's contains 3 or 6 or 9 or 12 ... a's.
(2 marks)
(a{3})+

c) All strings that have an odd number of a's or even number of b's over the alphabet{a,b}. *(3 marks)*

(b*ab*ab*)*ab*|(a*ba*ba*)*

Model C:

1) What are the two main public classes in the java.util.regex package? Describe the purpose of each. *(2 marks)*

   1. Pattern instances are compiled representations of regular expressions.
   2. Matcher instances are engines that interpret patterns and perform match operations against input strings.

2) Write regular expression for the following:

   a) A regular expression that matches dates like 31-12-1999 but not 31-13-1999.
      Note: range of dates from 01-01-1900 through 31-12-2099 *(3 marks)*

      ^(0[1-9]|[12][0-9]|3[01]) - (0[1-9]|1[012]) - (19|20)\d\d$

   b) Regex that match any number in range 1...999. *(3 marks)*

      ^([1-9]|[1-9][0-9]|[1-9][0-9][0-9])$ or
      ^[1-9][0-9]?[0-9]?

   c) Binary numbers that are a multiple of five. *(2 marks)*

      ((0|1){5})+