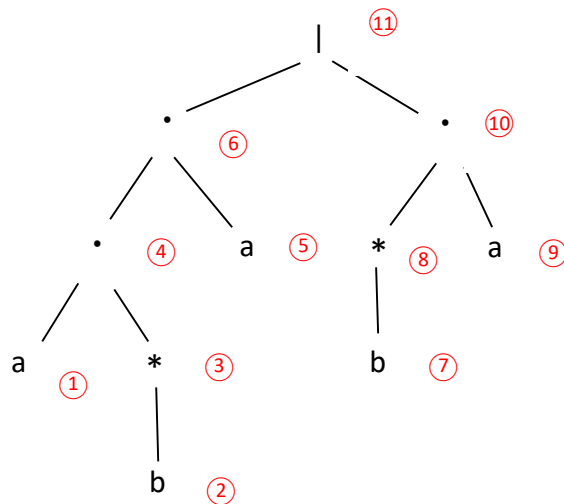1. Give the expression tree representation for each of the following regular expressions, and give the set representation for the language at each node of the expression tree.

(a) ab*a | b*a

60% (每小題 30% (圖 20% 其餘 10%))

1. {a}

2. {b}

3. {b^i|i>=0}

4. {ab^i|i>=0}

5. {a}

6. {$ab^i a$|i>=0}

7. {b}

8. {b^i|i>=0}

9. {a}

10. {$b^i a$|i>=0}

11. {$ab^i a$, $b^i a$|i>=0}

(b) $((\varepsilon | a) b*)*$
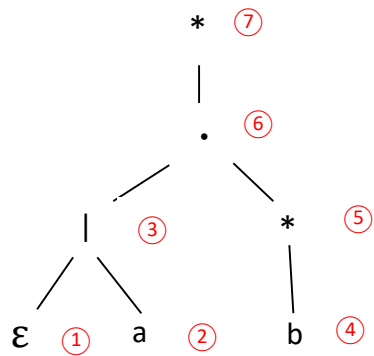
1. $\{\varepsilon\}$

2. $\{a\}$

3. $\{\varepsilon, a\}$

4. $\{b\}$

5. $\{b^i | i>=0\}$

6. $\{b^i, ab^i | i>=0\}$

7. $\{b^{ij}, (ab^i)^j | i>=0, j>=0\}$

2.   40% (每小題 20%)

(a)All strings of a's and b's with no repeated letters

a?(ba)*b?

(b)Comments, consisting of a string surrounded by /* and */, without an intervening */, unless it is inside double-quotes (").

LeftComment   /*

RightComment   */

DoubleQuotes   ["]

LeftComment ([^*"]* | (DoubleQuotes .* DoubleQuotes)* | *+ [^/])* RightComment