

## SENIOR DIVISION

<p><b>1. Boolean Algebra</b> Simplify the following Boolean expression:</p> $\overline{\overline{A(B+C)} + \overline{BC}} + \overline{\overline{ABC}}$	1.
<p><b>2. Boolean Algebra</b> How many ordered triple(s) make the following Boolean expression TRUE?</p> $\overline{\overline{A(\overline{BC} + \overline{AC})(\overline{AB} + BC)} + \overline{\overline{AB}(A + \overline{AB})(\overline{B} + \overline{C})}}$	2.
<p><b>3. Data Structures</b> What is the internal path length of the binary search tree for:</p> <p style="text-align: center;">PROVIDENCEPLANTATIONS</p>	3.
<p><b>4. Data Structures</b> Define the operation REV as follows: reverse the items in the list. Begin with an initially empty queue, perform the operations listed. What is the next item to be popped?</p> <p>PUSH(R), PUSH(O), POP(X), PUSH(G), REV, PUSH(E), PUSH(R), POP(X), REV, PUSH(W), PUSH(I), PUSH(L), REV, POP(X), PUSH(L), POP(X), PUSH(I), REV, PUSH(A), PUSH(M), POP(X), POP(X), PUSH(S), REV</p> <p>Now perform the operations again on an initially empty stack. What is the next item popped?</p>	<p>4. Queue <input type="checkbox"/></p> <p>Stack <input type="checkbox"/></p>
<p><b>5. Regular Expressions</b> Given the following regular expression: <math>[1-9]^*[a-j][k-z]^*.[o,c]^*[^!o,u]</math> which string(s) match the pattern?</p> <p>A. 18csl.ooo B. 1718acsl.com C. 40thyr.cov D. allst.or E. 1978ricsl.m</p>	5.