1. Boolean Algebra

Simplify the following Boolean expression:

$$\overline{A(B + \overline{C})} + \overline{A}\,\overline{B}(A + C)$$

A. $A + \overline{B}C$
B. $\overline{A} + \overline{B}\,\overline{C}$
C. $\overline{A} + BC$
D. $\overline{A} + \overline{B}C$
E. $A + BC$

2. Boolean Algebra

How many ordered triple(s) make the following Boolean expression TRUE?

$$(A \oplus (B + A)\overline{C}) + \overline{A}\,\overline{B}\,C$$

A. 0
B. 2
C. 3
D. 4
E. 6

3. Data Structures

Find the internal path length in the binary search tree for:

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A. 91
B. 94
C. 100
D. 109
E. 110

4. Data Structures

Given an initially empty stack and the following commands on the stack, what will be the next item popped?

PUSH("C"), PUSH("A"), X=POP( ), PUSH("S"),
PUSH("S"), PUSH("I"), X=POP( ), X=POP( ),
PUSH("O"), PUSH("P"), X=POP( ), PUSH("E"),
PUSH("I"), X=POP( ), PUSH("A"), X=POP( ), X=POP( )

A. A
B. C
C. I
D. O
E. E

5. FSAs and Regular Expressions

Which of the following strings match the regular expression pattern:

$$[ACSL]*[^aeiou]*21.2$$

a. Ab212
b. ACSL21
c. ACSL442122
d. cmptr212
e. A202122
f. pgrmmng21

A. a, c
B. b, c
C. c, e
D. d, e
E. e, f