Problem 1: 15 Points Total Possible

Answer, Part 1 (Truth Table) 10 Points possible

<table>
<thead>
<tr>
<th>A</th>
<th>B</th>
<th>C</th>
<th>S_o</th>
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</thead>
<tbody>
<tr>
<td>0</td>
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</tbody>
</table>

10 points for correct table
10 points for rows in different order
5 points for 1 or 2 errors
0 points for more than 2 errors

Answer, Part 2 (Circuit) 5 points possible

5 points for correct or equivalent circuit
0 points for incorrect circuit
Problem 2: 20 Total Points, 5 Bonus Possible

Answer, Part 1 (Boolean Function) 10 Points Possible

\[ S_o = A \oplus B \oplus C \]

10 points for above function
10 points for other function with 2 2-input gates
5 points for something close, else 0 points

Answer, Part 2 (Circuit) 10 Points + 5 Bonus Possible

10 points for above circuit
10 points for correct implementation of Part 1
15 points for 3-input XOR\[ \overline{ABC} + \overline{ABC} + \overline{ABC} + ABC \]
else 0 points

Problem 3: 15 Total Points Possible

Answer, Part 1 (Boolean Function) 10 Points Possible

\[ S_1 = \overline{A}BC + \overline{A}BC + ABC + ABC \]

10 points for correct or equivalent
else 0
Problem 4: 20 Total Points Possible

Answer, Part 1 (Boolean Function) 20 Points Possible

\[ S_1 = AB + BC + AC \text{ or } AB + C(A+B), \text{ etc.} \]

20 Points for above function

20 Points for other function using 3 products of size 2, for example \( AB + C(A \oplus B) \)

10 Points for something simpler than Problem 3 Answer 1

0 else

Answer, Part 2 (circuit) 0 Points Possible NOT REQUIRED
Problem 5: 10 Points Total Possible
Answer: ADD or COUNT

10 points for something involving "ADD" or "COUNT" (addition, adding, etc) or the like
0 points else

Problem 6: 20 Points Total Possible
Answer: 

20 Points for correct diagram
10 Points if other diagrams drawn are correct
0 else

Remember to add 4 points to all papers.