**EXAMINATION INSTRUCTIONS**

* Do not turn this page until asked to do so.
* Exam time is **30** minutes.
* Put the answers on the same question sheet, do not use any additional papers, even for scratch.
* Write your name, ID, section no. in the indicated places.
* Read the exam instructions.
* Read the honesty policy.
* Sign the following statement.

**Academic Integrity Policy**
Cheating in Exams is a violation of the Academic Integrity policy of AUC. Whispering, talking, looking at someone else’s paper, or copying from any source is considered cheating. Any one who does any of these actions or her/his answers indicates that she/he did any of them, will receive a punishment ranging from zero in this exam to failing the course. If repeated, it may lead to dismissal from AUC.

I have read the honesty policy and exam instructions and I am presenting this exam as entirely my effort.

Signature: _______________

**DO NOT USE THIS SECTION**

<table>
<thead>
<tr>
<th>Question</th>
<th>Points</th>
<th>Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>10</td>
<td></td>
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<tr>
<td>2</td>
<td>10</td>
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<tr>
<td><strong>Total</strong></td>
<td><strong>40</strong></td>
<td></td>
</tr>
</tbody>
</table>
Question 1 (10 points)

A result of \((AD)_{16}\) was produced in an accumulator of 8-bit structure. Give the value of this result in decimal notation for each of the following cases:

1. The computer is performing its operations in two's complement integer format:

2. The computer is performing its operations in sign-magnitude integer format:

Question 2 (10 points)

Subtract 35 from 17 using 8-bit two’s complement computation.

Question 3 (10 points)

Perform the following conversion operations to the number systems indicated:

\((1101)_{10} = (\quad)_{2} = (\quad)_{16}\)
Question 4 (10 points)

Tick only one possible answer for each of the following:

1) The smallest integer number that can be stored in 16-bit unsigned format is:
   a. 0
   b. -128
   c. 127
   d. none of the above

2) In binary: 1001 + 11101 = ?
   a. 101000
   b. 100110
   c. 110110
   d. none of the above

3) (10100011)₂ is equivalent to:
   a. (503)₈
   b. (503)₁₆
   c. (554)₁₀
   d. None of the above

4) The maximum signed integer that can be stored in 8-bit two's complement is:
   a. 255
   b. 127
   c. 128
   d. None of the above

5) (1101100001111)₂ is equivalent to:
   a. (1077)₈
   b. (1B0F)₁₆
   c. 128
   d. None of the above