Санкт-Петербургский Национальный Исследовательский Университет ИТМО

Факультет программной инженерии и компьютерной техники

Домашняя работа №2

По дисциплине

“Дискретная математика”

Вариант 15

Выполнил:

Студент группы P3117

Пономарёв М. И.

Преподаватель:

Поляков В. И.



|  |  |  |
| --- | --- | --- |
| № | *A* | *B* |
| **15.** | 54 | 66 |

1. *А* = 54, *В* = 66.

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| *А* > 0, *B* > 0. | | | | | | | | | Интерпретации | | | |
|  |  |  |  |  |  |  |  |  |  | Знаковая |  | Беззнаковая |
| *А*пр. | 0 | 0 | 1 | 1 | 0 | 1 | 1 | 0 |  | 54 |  | 54 |
| *B*пр. | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 |  | 66 |  | 66 |
| *С*пр. | 0 | 1 | 1 | 1 | 1 | 0 | 1 | 1 |  | 120 |  | 120 |

|  |  |  |  |  |  |  |
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| CF=0, | ZF=0, | PF=1, | AF=0, | SF=0, | OF=0. |  |

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| *А* > 0, *B* < 0. | | | | | | | | | Интерпретации | | | |
|  |  |  |  |  |  |  |  |  |  | Знаковая |  | Беззнаковая |
| *А*пр. | 0 | 0 | 1 | 1 | 0 | 1 | 1 | 0 |  | 54 |  | 54 |
| *B*доп. | 1 | 0 | 1 | 1 | 1 | 1 | 1 | 0 |  | -66 |  | 190 |
| *Cдоп.* | 1 | 1 | 1 | 1 | 0 | 1 | 0 | 0 |  |  |  | 244 |
| *С*пр. | 1 | 0 | 0 | 0 | 1 | 1 | 0 | 0 |  | -12 |  |  |

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| CF=0, | ZF=0, | PF=0, | AF=0, | SF=1, | OF=0. |  |
|  | | | | | | |

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| |  |  |  |  |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | | *А* < 0, *B* > 0. | | | | | | | | | Интерпретации | | | | |  |  |  |  |  |  |  |  |  |  | Знаковая |  | Беззнаковая | | | *А*доп | 1 | 1 | 0 | 0 | 1 | 0 | 1 | 0 |  | -54 |  | 202 | | | *B*пр. | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 |  | 66 |  | 66 | | | *С*доп. | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 |  | 12 |  | 12? | | | *С*пр. | 0 | 1 | 1 | 1 | 0 | 1 | 0 | 0 |  |  |  | |  | |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | | CF=1, | ZF=0, | PF=1, | AF=1, | SF=0, | OF=0. | | | | | | | | | | | | | | | |
| Для БзИ результат неверен вследствие возникающего переноса из старшего разряда. Вес этого переноса составляет 256. | | | | | | | | | | | | | | |
| *А* < 0, *B* < 0. | | | | | | | | | Интерпретации | | | |
|  |  |  |  |  |  |  |  |  |  | Знаковая |  | Беззнаковая |
| *А*доп. | 1 | 1 | 0 | 0 | 1 | 0 | 1 | 0 |  | -54 |  | 202 |
| *B*доп. | 1 | 0 | 1 | 1 | 1 | 1 | 1 | 0 |  | -66 |  | 190 |
| *С*доп. | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |  |  |  | 150? |
| *С*пр. | 1 | 1 | 1 | 0 | 1 | 0 | 1 | 0 |  | -106 |  |  |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| CF=1, | ZF=0, | PF=1, | AF=1, | SF=1, | OF=0. |

Для БзИ результат неверен вследствие возникающего переноса из старшего разряда. Вес этого переноса составляет 256.

1. Правилодля подбора выглядит следующим образом:

*А + В* > 128, значит 127*>B* >128 - *A*, пусть *В* = 96.

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 1 | 1 | 0 | 0 | 0 | 0 |

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| *В* | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 |

*А*

7 0 7 0

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| *А* > 0, *B* > 0. | | | | | | | | | Интерпретации | | | |
|  |  |  |  |  |  |  |  |  |  | Знаковая |  | Беззнаковая |
| *А*пр. | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 0 |  | 112 |  | 112 |
| *B*пр. | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 |  | 96 |  | 96 |
| *С*доп. | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 |  |  |  | 208 |
| *С*пр. | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 |  | -16 |  |  |

|  |  |  |  |  |  |
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| CF=0, | ZF=0, | PF=1, | AF=1, | SF=1, | OF=1. |

Для знакового сложения результат является некорректным вследствие переполнения формата.

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| *А* < 0, *B* < 0. | | | | | | | | | Интерпретации | | | |
|  |  |  |  |  |  |  |  |  |  | Знаковая |  | Беззнаковая |
| *А*доп. | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 |  | -112 |  | 144 |
| *B*доп. | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 |  | -96 |  | 160 |
| *С*пр. | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 |  | 48? |  | 48? |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| CF=1, | ZF=0, | PF=1, | AF=0, | SF=0, | OF=1. |

Для знаковой интерпретации результат неверен вследствие возникающего переполнения, для беззнаковой интерпретации результат неверен вследствие возникающего переноса из старшего разряда

**3.** Значение числа *В* фиксируем (*В* = 67), а значение *А* подбираем согласно формуле *А + В* = 128, по которой при сложении положительных чисел будет фиксироваться переполнение, а при сложении отрицательных этого не будет. Тогда *А* = 61.

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 0 | 0 | 0 | 0 | 1 | 1 |

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| *B* | 0 | 0 | 1 | 1 | 1 | 1 | 0 | 1 |

*А*

7 0 7 0

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| *А* > 0, *B* > 0. | | | | | | | Интерпретации | | | | | | |
|  |  |  |  |  |  |  | |  |  |  | Знаковая |  | Беззнаковая | |
| *А*пр. | 0 | 1 | 0 | 0 | 0 | 0 | | 1 | 1 |  | 67 |  | 67 | |
| *B*пр. | 0 | 0 | 1 | 1 | 1 | 1 | | 0 | 1 |  | 61 |  | 61 | |
| *С*доп. | 1 | 0 | 0 | 0 | 0 | 0 | | 0 | 0 |  |  |  | 128 | |
| *С*пр. | 1 | 0 | 0 | 0 | 0 | 0 | | 0 | 0 |  | -128? |  |  | |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| CF=0, | ZF=0, | PF=0, | AF=1, | SF=1, | OF=1. |

Для знаковой интерпретации результат некорректен вследствие возникающего переполнения.

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| *А* < 0, *B* < 0. | | | | | | | | | Интерпретации | | | |
|  |  |  |  |  |  |  |  |  |  | Знаковая |  | Беззнаковая |
| *А*доп. | 1 | 0 | 1 | 1 | 1 | 1 | 0 | 1 |  | -67 |  | 189 |
| *B*доп. | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 |  | -61 |  | 195 |
| *С*доп. | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |  |  |  | 128? |
| *С*пр. | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |  | -128 |  |  |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| CF=1, | ZF=0, | PF=0, | AF=1, | SF=1, | OF=0. |

Для беззнаковой интерпретации результат неверен вследствие возникающего переноса из старшего разряда, результат знаковой интерпретации корректен.