§.C++的初步知识 – 进制转换习题

**【要求：】1、十进制转其它进制，必须列出竖式（含小数计算）**

**2、十进制转二进制小数，如积的小数部分不为0，计算到二进制小数点后6位为止**

**3、其它进制转换，必须写清楚具体步骤（具体参考下发课件的相关page）**

**4、注意排版格式，上下标等设置等**

**5、可直接在本Word文档上完成作业（Word/WPS排版），可以使用第三方工具软件完成，但不允许手写后拍照、不允许直接在电脑/Pad用手写方式完成**

**6、转换为PDF后提交即可**

**学号：\_\_2253893\_\_ 班级：\_\_\_\_\_信06\_\_\_\_\_\_ 姓名：\_\_\_\_\_苗君文\_\_\_\_\_**

1. **十进制转二进制（整数列竖式）**

A.2023

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 2 | | | 2023 | | | | | | | | | | | | | | | | | |  |
| 2 | | | 1011 | | | | | | | | | | | | | | | | | ……1 |
| 2 | | | | 505 | | | | | | | | | | | | | | | ……1 |
| 2 | | | | | 252 | | | | | | | | | | | | | ……1 |
| 2 | | | | | | 126 | | | | | | | | | | ……0 |
| 2 | | | | | | 63 | | | | | | | | ……0 |
| 2 | | | | | | | 31 | | | | | | ……1 |
| 2 | | | | | | | 15 | | | | | ……1 |
| 2 | | | | | | | 7 | | | | ……1 |
| 2 | | | | | | 3 | | | ……1 |
| 2 | | | | | | 1 | | ……1 |
|  | | | | | | 0 | ……1 |

2023=(11111100111)2

B.五位整数，本人学号的后五位(例：学号-2251234，则整数为51234，下同)

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 2 | | | 53893 | | | | | | | | | | | | | | | | | | | | | | | | | | |  |
| 2 | | | 26946 | | | | | | | | | | | | | | | | | | | | | | | | | | ……1 |
| 2 | | | | 13473 | | | | | | | | | | | | | | | | | | | | | | | | ……0 |
| 2 | | | | | 6736 | | | | | | | | | | | | | | | | | | | | | | ……1 |
| 2 | | | | | | 3368 | | | | | | | | | | | | | | | | | | | ……0 |
| 2 | | | | | | 1684 | | | | | | | | | | | | | | | | | ……0 |
| 2 | | | | | | | 842 | | | | | | | | | | | | | | | ……0 |
| 2 | | | | | | | | 421 | | | | | | | | | | | | | ……0 |
| 2 | | | | | | | | 210 | | | | | | | | | | | | ……1 |
| 2 | | | | | | | | 105 | | | | | | | | | | ……0 |
| 2 | | | | | | | | | 52 | | | | | | | | ……1 |
| 2 | | | | | | | | | | 26 | | | | | | ……0 |
| 2 | | | | | | | | | 13 | | | | | ……0 |
| 2 | | | | | | | 6 | | | | ……1 |
| 2 | | | | | | 3 | | | ……0 |
| 2 | | | | | | 1 | | ……1 |
|  | | | | | | 0 | ……1 |

(53893)10=(1101001010000101)2

C.0.375

0.375

× 2

0.75……0

× 2

1.5……1

× 2

1……1

(0.375)10=(0.011)2

D.8.0625

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 2 | | | 8 | | | | | |  |
| 2 | | | 4 | | | | | ……0 |
| 2 | | | | 2 | | | ……0 |
| 2 | | | | 1 | | ……0 |
| 2 | | | 0 | ……1 |

0.0625

× 2

0.125……0

× 2

0.25……0

× 2

0.5……0

× 2

1……1

(8.0625)10=(1000.0001)2

1. **二进制转十进制（幂排版为上标102，不能用10^2等形式，0 x 2x也要列出）**

A.10101110110

0\*20+1\*21+1\*22+0\*23+1\*24+1\*25+1\*26+0\*27+1\*28+0\*29+1\*210=1398

B.第(1)题中学号后五位转换而来的二进制数1101001010000101

1\*20+0\*21+1\*22+0\*23+0\*24+0\*25+0\*26+1\*27+0\*28+1\*29+0\*210+0\*211+1\*212+0\*213+1\*214+1\*215=53893

C.1011.1101

1\*20+1\*21+0\*22+1\*23+1\*2-1+1\*2-2+0\*2-3+1\*2-4=11.8125

D.0.10111101

1\*2-1+0\*2-2+1\*2-3+1\*2-4+1\*2-5+1\*2-6+0\*2-7+1\*2-8=0.73828125

1. **十进制转八进制（列竖式）**

A.3905

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 8 | | | 3905 | | | | | |  |
| 8 | | | 488 | | | | | ……1 |
| 8 | | | | 61 | | | ……0 |
| 8 | | | | 7 | | ……5 |
|  | | | 0 | ……7 |

(3905)10=(7501)8

B.五位整数，本人学号的后五位

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 8 | | | 53893 | | | | | | | | |  |
| 8 | | | 6736 | | | | | | | | ……5 |
| 8 | | | | 842 | | | | | | ……0 |
| 8 | | | | | 105 | | | | ……2 |
| 8 | | | | 13 | | | ……1 |
| 8 | | | 1 | | ……5 |
|  | | | 0 | ……1 |

(53893)10=(151205)8

1. **八进制转十进制（同二转十要求）**

A.617032

2\*80+3\*81+0\*82+7\*83+1\*84+6\*85=204314

B.第(3)题中学号后五位转换而来的八进制数151205

5\*80+0\*81+2\*82+1\*83+5\*84+1\*85=53893

1. **十进制转十六进制（列竖式）**

A.3905

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| 16 | | | 3905 | | | |  |
| 16 | | | 244 | | | ……1 |
| 16 | | | 15 | | ……4 |
|  | | | 0 | ……15 |

(3905)10=(F41)16

B.五位整数，本人学号的后五位

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 16 | | | 53893 | | | | | |  |
| 16 | | | 3368 | | | | | ……5 |
| 16 | | | | 210 | | | ……8 |
| 16 | | | | 13 | | ……2 |
|  | | | 0 | ……13 |

(53893)10=(D285)16

1. **十六进制转十进制（同二转十要求）**
2. C35B8

8\*160+11\*161+5\*162+3\*163+12\*164=800184

1. 第(5)题中学号后五位转换而来的十六进制数D285

5\*160+8\*161+2\*162+13\*163=53893

1. **二进制转八进制**

A.10101110110

(10101110110)2=10 101 110 110=(2566)8

1. 第(1)题中学号后五位转换而来的二进制数

(1101001010000101)2=1 101 001 010 000 101=(151205)8

1. **八进制转二进制**

A.617032

(617032)8=110 001 111 000 011 010=(110001111000011010)2

B.第(3)题中学号后五位转换而来的八进制数

(151205)8=001 101 001 010 000 101=(1101001010000101)2

1. **二进制转十六进制**

A.10101110110

(10101110110)2=101 0111 0110=(576)16

B.第(1)题中学号后五位转换而来的二进制数

(1101001010000101)2=1101 0010 1000 0101=(D285)16

1. **十六进制转二进制**
2. C35B8

(C35B8)16=1100 0011 0101 1011 1000=(11000011010110111000)2

1. 第(5)题中学号后五位转换而来的十六进制数

(D285)16=1101 0010 1000 0101=(1101001010000101)2

1. **八进制转十六进制**

A.617032

(617032)8=(11 0001 1110 0001 1010)2=(31E1A)16

B.第(3)题中学号后五位转换而来的八进制数

(151205)8=(1101 0010 1000 0101)2=(D285)16

1. **十六进制转八进制**
2. C35B8

(C35B8)16=(11 000 011 010 110 111 000)2=(3032670)8

1. 第(5)题中学号后五位转换而来的十六进制数

(D285)16=(001 101 001 010 000 101)8=(151205)8

**【作业要求：】**

1. **2月28前**网上提交本次作业
2. 将作业转换为PDF格式，改名为Report-2-b1.pdf后提交即可（在“文档作业”中）
3. 每题所占平时成绩的具体分值见网页
4. 超过截止时间提交作业会自动扣除相应的分数，具体见网页上的说明
5. 交作业网站的初始信息等请看问卷调查文档