|  |  |  |
| --- | --- | --- |
| ID | Last Name | First Name |
| 21321215 | Liu | Xiang |

Variant D

**1.04.3** In what situations Carry Flag will be set to 1?

When the result is negative

**2.11.18** There are two numbers in decimal binary system: X1 = 5681(10), X2 = 14136(10).

Find X3 = –X1, X4 = X1 + X2. Translate decimal numbers X1, X2, X3 and X4 to binary system (X1(10) -> B1(2), X2(10) -> B2(2), X3(10) -> B3(2), X4(10) -> B4(2)), using 16-bits signed binary format. Calculate numbers B5 = B2 + B4 and B6 = B2 + B3. Set 6 arithmetic flags (SF, ZF, PF, AF, CF, OF) for B5 and B6. All calculations in binary format should be done using two’s complement.

B1=0001.0110.0011.0001

B2=0011.0111.0011.1000

B3=

B4=0100.1101.0110.1001

B5=1000.0100.1010.0001 SF=0 ZF=0 PF=1 AF=1 CF=0 OF=0

B6=0010.0001.0000.0111 SF=0 ZF=0 PF=0 AF=1 CF=1 OF=0

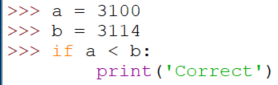
**3.24.5** There are n=5 numbers (1,2,3,4,5). Find the 93th permutation(for example, 31425 is 10th permutation). Explain/write full decision, not result only.

**4.31.6** Translate number 73.58(10) to 8-NS (4 digits after point) and to 16-NS (3 digits after point). Choose the method of rounding by yourself.

111.1507(2)

49.947(2)

**5.44.3** The following Python code is given:



What will be displayed? If you think that nothing, then write the word "Nothing".

Correct

**6.54.3** The solution of equation is:

* х = 3
* х = 30 It is correct
* х = 300
* x = 3000
* there is no right answer

x=30

**7.64.4** What is the ambiguity (=double meaning, uncertainty) of The Zeckendorf (= Fibonacci) number system? Explain the answer briefly.

**8.74.4** Which number is bigger: 0.321(115) or 0.321(116)? Explain the answer.

0.321(115) is bigger then 0.321(116)

Because 1/115 is bigger then 1/116

**9.84.4** Translate the number from nega-decimal to decimal. It is -1001

**10.94.4** A 3-bit binary is represented by a code with a fixed left 7 offset. Specify the range of valid values.

【-7，1】

**11.104.3** The system can be in one of four unknown states. The probabilities of these states are 0.25, 0.25, 0.25, and 0.25, respectively. How much information does this system contain according to Hartley's measure?

**12.114.4** The number 538(Fact) was obtained as a result of the translation of the number 44(10) to the factorial numeral system. Was the translation made correctly or not? Describe your ideas.

It is correct 538(Fact)=8\*1！+3\*2!+5\*3!=8+3\*2+5\*6=44

**13.122.2** What command is used in TeX to generate text-"template"? Text-“template” is a text without any meaning (like ‘cat likes milk’) to fill the paper and check fonts.

**14.131.6** Explain what the macro is and what is it used for.

It is a set code that can do some orders.

**15.141.3** System has 9120 equiprobable (with the same probabilities) states. Calculate in dits the Hartley measure for this system. The answer should be rounded up to the integer.

**16.153.4** The numeral system with irrational base invented by George Bergman is based on (please choose the right answer):

* factorial;
* Teylor’s rows;
* negative bases;
* “golden ratio”, i.e. 1,618; It is right
* Fibonacci numbers.

**17.161.5** System has 52 equiprobable (with the same probabilities) states. Calculate in nits the Hartley measure for this system. The answer should be rounded to the integer.

**18.172.5** There is a computer with a 4-bit architecture. Please specify the binary representation of -5 and +5 numbers for each case listed below:

|  |  |  |
| --- | --- | --- |
| **System** | **-5** | **+5** |
| sign bit usage for negative numbers representation | 1101 | 0101 |
| fixed left offset for negative numbers representation | 1010 | 0101 |
| numeral system with base -2 | 0011 | 0101 |
| one’s complement |  |  |
| two’s complement |  |  |

**19.181.3** How can one sentence be styled as *cursive* (italic) in TeX? It can be more than one way. There should be more than one answer.

Write the sentence,select it and ues "crtl+i"

**20.193.3** Please describe in words the result of running commands dt+F3 or LOREM+F3 in Libre Office Writer.

#NAME

**21.203.3** Please provide some examples of the most popular licenses for a free software owning (at least two).

SQLite ImageJ

**22.211.4** Translate number 53142 presented in numeral system with the base 125 to numeral system with the base 5 using short translation method. Explain/write your solution.

125=5\*5\*5

So 1 in 125 numeral system is 001 in 5 numeral system,the same 2 in 125 is 002 in 5,5 in 125 is 010 in 5

SO 53142 in 125 numeral system is 10003001004002 in 5 numeral system