**疫情期间开卷考试说明**

**1.鉴于昨晚获悉大家下午须参加辅导员布置的在线会议学习时间太晚，来不及修改考试日期并通知全部同学，故本次考试的试卷发放时间不变，但提交时间推迟至2022-12-15 20：00（当天晚上20点）；**

**2.试题为开卷，可以查阅资料，请不要互相商量或互相抄袭，后期会查重确认；**

**3.答题完毕后，请大家用自己的学号名字命名答题后的文件，如2022XXXXXXXXXX张三的方式命名，在2022-12-15 20：00（当天晚上20点）**[**前将自己所答试题提交到阅卷助教的邮箱**tian.tian2012@qq.com](mailto:前将自己所答试题提交到阅卷助教的邮箱tian.tian2012@qq.com)**，为了考试公平，及时阅卷，提交过时不候。**

**4.因为要邮件方式存档并留存提交时间，以备学校学院检查，故不能通过QQ聊天提交给个人，请大家理解，谢谢！**

**5.试卷空格或空白不足之处可加格加页，空白太多可删除。**

**西南大学计算机与信息科学学院**

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**《 编程概论 》课程试题 【A】卷**

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| **2022～2023学年 第1学期** | | | | | | | | | | | **期****末考试** | | |
| **考试时间** | | **120分钟** | | **考核方式** | | **开卷机考** | | | **学生类别** | | **本科** | **人数** | **61** |
| **适用专业或科类** | | | | **计算机科学（中外合作办学）** | | | | | | | **年级** | **2022级** | |
| **题号** | **一** | | **二** | **三** | **四** | | **五** | **六** | | **七** | **八** | **九** | **合计** |
| **得分** |  | |  |  |  | |  |  | |  |  |  |  |
| **签名** |  | |  |  |  | |  |  | |  |  |  |  |

**阅卷须知：阅卷用红色墨水笔书写，得分用阿拉伯数字写在每小题题号前，用正分表示，不得分则在题号前写0；大题得分登录在对应的分数框内；统一命题的课程应集体阅卷，流水作业；阅卷后要进行复核，发现漏评、漏记或总分统计错误应及时更正；对评定分数或统分记录进行修改时，修改人必须签名。**

**特别提醒：学生必须遵守课程考核纪律，违规者将受到严肃处**

1. **Part one(对应大纲中课程目标1)**
2. **Mark True (T) or False (F) for each statement (20%, 2 points×10):**

**（答案写在此处）Answers: 1~5 6~10**

* 1. Since sets are immutable objects, they could not rebind to another value after assigned a vale.
  2. In python, { } means a blank set which without any item.
  3. The list may has side-effect when change value, but the tuple has not it.
  4. Any while loop can be re-written to for loop, but for loop could not re-write to while loop sometimes.
  5. The return of the input function in python can be integer type sometimes.
  6. Items are accessed by their position in a dictionary and All the keys in a dictionary must be of the same type.
  7. A package or modular in python may include functions.
  8. The key words try…except can be used to catch the error in a program, same as assert works.
  9. A superclass belongs all the properties and methods as his subclass belongs, but the subclass may lack of some properties/methods as superclass belongs.
  10. The regex expression [**.0-9]+** can match any integer and float number.

1. **Multiple choice questions.（single selection questions） (20%, 2 points×10):**

**（答案写在此处）Answers: 1~5 6~10**

1. Select all the valid String creation in Python
2. str1 = “str1”
3. str1 = "str1""
4. str1 = '''str1''
5. str1 = str(Jessa)
6. Is Python case sensitive when dealing with identifiers?
7. no
8. yes
9. machine dependent
10. none of the mentioned
11. Which of the following statements is used to create an empty set in Python?
12. ( )
13. [ ]
14. { }
15. set()
16. Which one of the following syntaxes is the correct syntax to read from a simple text file stored in ''E:\data.csv''?
17. F1 = open(''E:\data.csv'', ''r'')
18. F1 = open(file=''E:\\\data.csv'', ''r'')
19. F1 = open(''E:\data.csv'',''r'')
20. F1 = open.file(''E:\\data.csv,''r'')
21. Suppose t = (1, 2, 4, 3), which of the following is incorrect?
22. print(t[3])
23. t[3] = 45
24. print(max(t))
25. print(len(t))
26. What will be the output of the following Python code?

i = 0

**while** i < 7:

i += 1

**if** i == 3:

**continue**

**if** i == 5:

**break**

**print**(i)

**else**:

**print**(0)

|  |  |
| --- | --- |
|  | 1 |
|  | 2 |
|  | 3 |
|  | 1 |
|  | 3 |
|  | 4 |
|  | 2 |
|  | 3 |
|  | 4 |
|  | 1 |
|  | 2  4 |

1. Select the correct way to print Emma’s age.

student = {1: {'name': 'Emma', 'age': '27', 'sex': 'Female'},

2: {'name': 'Mike', 'age': '22', 'sex': 'Male'}}

1. student[1]["age"]
2. student[0][1]
3. student[0]["age"]
4. student[1][0]
5. What is true for file mode w
6. Write a file if the specified file does not exist
7. Write a file, returns an error if the file does not exists
8. Write a file, override it if the file exists
9. Write a file, returns an error if the file does not exists
10. What will be the output of the following Python code?

a=0

def func():

a=3

print(a)

func()

print(a)

|  |  |
| --- | --- |
|  | 3 |
|  | 0 |
|  |  |
|  | 0 |
|  | 3 |
|  |  |
|  | 0 |
|  | 0 |
|  |  |
|  | 3 |
|  | 3 |

1. . What will be the output of the following Python code?

L1=[1,2,3,4,5]

[x&1 **for** x **in** L1]

1. [1, 1, 1, 1, 1]
2. [1, 0, 1, 0, 1]
3. [1, 0, 0, 0, 0]
4. [0, 1, 0, 1, 0]
5. **Part two(对应大纲中课程目标2)**
6. **According to the requirements of the questions, fill the blanks by the appropriate codes). (20%, 4 points×5):**
7. Binary Search(also called bisection search or half-interval search) : In computer science, a binary search algorithm finds the position of a target value within a sorted array. The binary search algorithm can be classified as a divide-and-conquer search algorithm and executes in logarithmic time. Please the blanks of the binary search.

def binary\_search(item\_list,item):

‘’’ Find the item in a list item\_list,

if item in the item\_list return True otherwise return False

‘’’

first = 0

last = len(item\_list)-1

found = False

while( first<=last and not found):

mid = (first + last)//2

if item\_list[mid] == item :

found = True

else:

if item < item\_list[mid]:

#change the boundary to decrease the search range

else:

#change the boundary to decrease the search range

return found

print(binary\_search([1,2,3,5,8], 6))

print(binary\_search([1,2,3,5,8], 5))

1. the aim of the function match\_words is counting the number of strings where the string length is 2 or more, and the first and last character are same from a given list of strings.

Sample List : ['abc', 'xyz', 'aba', '1221']  
Expected Result : 2

Please fill the blanks to complete the function.

def match\_words(words):

‘’’

Counting the number of strings where the string length is (1) larger than two, and (2 )the first and last character are same from a given list( words) of strings

‘’’

ctr = 0 #initial the variable for count

for word in words:

#the condition of count

#count variable add one

return ctr

print(match\_words(['abc', 'xyz', 'aba', '1221']))

1. **short-answer questions (10%, 5 points×2):**
2. Describe the functionality of the code. (5%, 5 points×1):

import math

a = float(input("Enter the first coefficient: "))

b = float(input("Enter the second coefficient: "))

c = float(input("Enter the third coefficient: "))

if (a!=0.0):

d = (b\*b)-(4\*a\*c)

if (d==0.0):

print("The roots are real and equal.")

r = -b/(2\*a)

print("The roots are ", r,"and", r)

elif(d>0.0):

print("The roots are real and distinct.")

r1 = (-b+(math.sqrt(d)))/(2\*a)

r2 = (-b-(math.sqrt(d)))/(2\*a)

print("The root1 is: ", r1)

print("The root2 is: ", r2)

else:

print("The roots are imaginary.")

rp = -b/(2\*a)

ip = math.sqrt(-d)/(2\*a)

print("The root1 is: ", rp, "+ i",ip)

print("The root2 is: ", rp, "- i",ip)

else:

print("Not a quadratic equation.")

1. Analyze the time complexity of the code. (5%, 5 points×1):

def FUC1(n):

for i in range(n):

for j in range(i):

print ('\* ', end="")

print('')

for i in range(n,0,-1):

for j in range(i):

print('\* ', end="")

print('')

1. **Part three(对应大纲中课程目标3)**
2. **Write a program to Write a program to meet the requirements of the questions. (30%, 30 points):**
3. Write a Recursion program to calculate the sum of the positive cintegers of n+(n-2)+(n-4)... (until n-x =< 0).  (10%, 10 points)

2. A website requires the users to input username and password to register. Write a program to check the validity of password input by users. (20%, 20 points)

Following are the criteria for checking the password:

1. At least 1 letter between [a-z]

2. At least 1 number between [0-9]

1. At least 1 letter between [A-Z]

3. At least 1 character from [$#@]

4. Minimum length of transaction password: 6

5. Maximum length of transaction password: 12

Your program should accept a sequence of comma separated passwords and will check them according to the above criteria. Passwords that match the criteria are to be printed, each separated by a comma.

Example

If the following passwords are given as input to the program:

ABd1234@1,a F1#,2w3E\*,2We3345

Then, the output of the program should be:

ABd1234@1

Hints:

In case of input data being supplied to the question, it should be assumed to be a console input.