U.S.N.										

B.M.S. College of Engineering, Bengaluru-560019

Autonomous Institute Affiliated to VTU

August 2024 Supplementary Examinations

Programme: B.E. **Semester: VII**
Branch: Computer Science And Engineering **Duration: 3 hrs.**
Course Code: 21CS7OEPYP **Max Marks: 100**
Course: Python Programming

Instructions: 1. Answer any FIVE full questions, choosing one full question from each unit.
2. Missing data, if any, may suitably assumed.

UNIT - I

1 a) Differentiate between mutable and immutable objects in Python and explain with an example. **5**

b) Analyze the below code and write all the test cases with an example. **5**

```
while True:
   line = input('> ')
   if line[0] == '#':
        continue
   if line == 'done':
       break
   print(line)
print('Done!')
```

c) Write a Python program to prompt the user for hours and rate per hour to compute gross pay. Define your own function to check hours and rate per hour entered is in float and to compute the gross pay. **10**

UNIT - II

2 a) Write a Python program to accept the string in the format given below and perform the following operations: **10**

str = 'X-DSPAM-Confidence:**0.8475**'

i) Extract only floating point
ii) Count the number of uppercase characters in the given string.

b) A Professor is conducting a camp for a group of five students. Based on their performance and behavior during the camp, the professor rewards them with points. Write Python functions to: **10**

i) Find the total number of points received by all the students put together.Assume that each student is identified by an id and it is stored in a tuple and the number of points given to each student is stored in a list.

ii) The professor also rewards a student with few extra points for his/her best conduct during the camp. If the number of extra points is less than 1, an error message "Extra points is less than 1", should be displayed.

If the given student Id is invalid, an error message "Student id is invalid" should be displayed. Otherwise, the extra points provided for the student must be added to his/her existing number of points and display the list containing the total number of points received by each student.

OR

3 a) Explain the following list operations with an example for each. **5**

i. append
ii. extend
iii. sort
iv. pop
v. remove

b) Analyze the below given code and write the output with justification. **5**

```
my_dict = {}
my_dict[1] = 1
my_dict['1'] = 2
my_dict[1.0] = 4
sum = 0
for k in my_dict:
    sum += my_dict[k]
print (sum)
```

c) Training center wants to know the course speciality enquired by the maximum number of students. Assume that the student id of the student along with the course speciality enquired by the student is stored in a list. The details of the course specialties are stored in a dictionary as follows: **10**

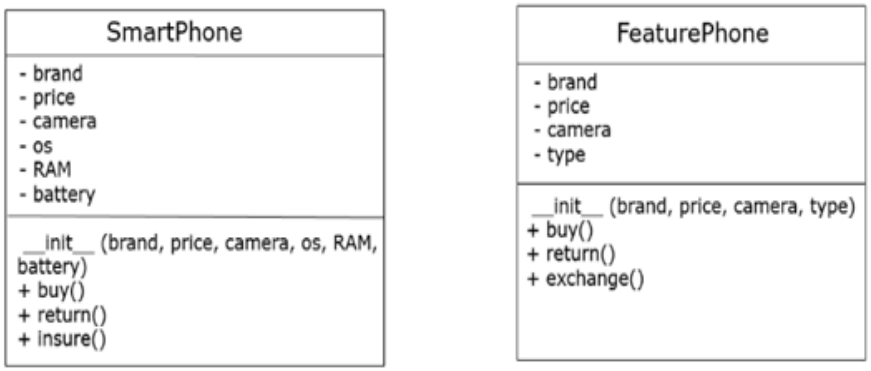
```
{
"A":"Artificial Intelligence",
"M":"Machine Learning",
"R":"Robotics”
}
```

Write a function to find the course speciality enquired by the maximum number of students and return the name of the speciality.

Sample Input	Expected Output
[101,A,102,M,302,A,305,A]	Artificial Intelligence
[101,M,102,M,302,A,305,E,401,M,656,M]	Machine Learning
[101,M,102,R,302,A,305,A,401,R,656,M,987,R]	Robotics

UNIT - III

4 a) Analyze the below given class diagram and implement using suitable python code. **10**



b) Demonstrate with a suitable example the use of method overriding. **5**

c) Write a Python object oriented code to add two complex numbers. **5**

OR

5 a) Design a simple Shopping Price calculator application to calculate the total shopping price of the items purchased. The application should not stop even if user has entered negative price to calculate the total shopping price of the item. Display the suitable error message to the user if he/she inputs negative price. **10**

b) Write a Python program which repeatedly reads numbers until the user enters "done". Once "done" is entered, print out the total, count, and average of the numbers. If the user enters anything other than a number, detect their mistake using try and except and print an error message and skip to the next number. **10**

UNIT - IV

6 a) Analyze the below given Python code and answer the following questions: **10**

```
import re
hand = open('mbox-short.txt')
for line in hand:
  line = line.rstrip()
   x = re.findall('\S+@\S+', line)
    if len(x) > 0:
       print(x)
```

i) write the output for the given input.txt

```
['wagnermr@iupui.edu']
['cwen@iupui.edu']
['<postmaster@collab.sakaiproject.org>']
['<200801032122.m03LMFo4005148@nakamura.uits.iupui.edu>']
['<source@collab.sakaiproject.org>;']
['<source@collab.sakaiproject.org>;']
['<source@collab.sakaiproject.org>;']
['apache@localhost)']
['source@collab.sakaiproject.org;']
```

ii) Modify the above Python code to display only lines contain valid email address (starts with alphanumeric).

b) Given a text file which consists of COVID19 case study in India, extract the largest word in this text file using Python programming code. **10**

UNIT - V

7 a) Write a Python code to perform the following operation on sqlite database: **10**

i) Create a table to store music information Id and title.
ii) Insert two music id and title.
iii) Display all the information on to the screen.

b) Demonstrate with a sample code to update a specific column in a table (student) and display the details (name, age and address) of the student after update. **6**

c) Demonstrate with an example visualizing networks and interconnection. **4**

****