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

Autonomous Institute Affiliated to VTU

September / October 2023 Supplementary Examinations

Programme: B.E. **Semester: V**
Branch: Information Science and Engineering **Duration: 3 hrs.**
Course Code: 20IS5PEAPP **Max Marks: 100**
Course: Advanced 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) Suppose we have a file that includes class name list (USN, NAME) with 75 lines of data and the file object reference is "f". Illustrate what each of these following operations does: **05**

1. f.seek(0,)
2. f.seek(20,1)
3. f.seek(-25,2)
4. f.seek(0,2)
5. f.tell()

b) Implement a program to copy one python script into another by removing all the new lines from the source file to destination file. **05**

c) Demonstrate Object Serialization in python by creating a custom class called Student .Student will store Student name, age, USN, Section, CGPA Save it and load it up into a separate object and display the new object. **10**

UNIT - II

2 a) Discuss different ways of retrieving data from a SQLite3 database in python. **05**

b) Write a Python code to do the following task. **05**

I. Create table EMPLOYEE with empid, fname, lname,gender, joining date
II. Insert five values into employee table
III. Update lname as "Rao" where fname is "Rishabh"
IV. Delete the row where fname="Rishabh"
V. Fetch and print two rows.

c) Consider BOOK DEALER DATABASE. The following tables are maintained by a book dealer: **10**
AUTHOR(author-id, name, city, country)
PUBLISHER(publisher-id, name, city, country)
Write the Query for the following:
i) Create tables with author-id and publisher-id as the primary key.

ii) Insert values for each table (One tuple for each table)
iii) Modify the table publisher by adding a new column email-id and update its values from NULL to abc@gmail.com.
iv) Display the details of both the tables after modification.

UNIT - III

3 a) What are NumPy Universal Functions? Explain any five functions with suitable examples. **05**

b) Implement a python program to take fruits names from array of fruits. To sort the array in alphabetical manner and display their index position. **05**

c) What is broadcasting in computation on arrays in python? List the rules of broadcasting. Illustrate the rules with examples for each. **10**

OR

4 a) Implement a python program to create an Numpy array of 20 random elements and search the elements of the array using linear search. **06**

b) Implement a python program to create three Numpy arrays representing a list of people, along with their age and height. Sort this group of people by age and print three arrays after sorting. **06**

c) Extract from the array np.array([3,4,6,10,24,89,45,43,46,99,100]) with Boolean masking all the number **08**

I. which are not divisible by 2
II. which are divisible by 8
III. which are divisible by 2 and 4
IV. which are divisible by 4 and set them to 28

UNIT - IV

5 a) What is series in pandas? Illustrate with an example how you will create a series from dictionary in Pandas. **05**

b) Illustrate with an example different methods of indexing rows and columns. **05**

c) Implement a program to create the dataframe from the below data. **10**

Regd. No	Name	Percentage of Marks
100	John	74.5
101	Smith	87.2
102	Parker	92
103	Jones	70.6
104	William	87.5

Perform the following task:
i)Display the first two rows
ii)Display only the last rows
iii)extract the percentage of marks of jones and William
iv) Display the last column using loc.

UNIT - V

6 a) Illustrate with an example how missing data is handled in pandas. Consider all cases. **10**

b) Create the DataFrame with the help of given data: **10**

	one	two	three
a	-1.188840	0.989043	1.203736
b	NaN	NaN	NaN
c	-0.253257	0.378206	0.177747
d	NaN	NaN	NaN
e	-2.127345	-0.221704	-1.140072
f	-1.291215	-0.627617	-2.165324
g	NaN	NaN	NaN
h	0.308141	0.967571	-1.540307

I. Fill the missing values with 0
II. Find the average of one, two and three columns.
III. To drop the rows where at least one element is missing in a given DataFrame.
IV. To replace NaN's with Median or mean of the specified columns in a given DataFrame.

OR

7 a) Implement a python program to create two series A & B which consist of 10 random numbers and print the items that are not common to both series A and series B. **05**

b) Illustrate with an example one-to-one, many Many-to-one Many-to-many of joins implemented in Pandas. **05**

c) Write a pandas program to create the below dataframe,split the below dataframe by type and get min,max,mean value of top_speed(mph) for each type. **10**

	Type	Name	top_speed(mph)
0	Bike	Kawasaki	186
1	Bike	Ducati Panigale	202
2	Car	Bugatti Chiron	304
3	Car	Jaguar XJ220	210
4	Bike	Lightning LS-218	218
5	Car	Hennessey Venom GT	270
6	Bike	BMW S1000RR	188

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