

MAR-APR 2023

Total No. of Questions : 5]

SEAT No. :

P3344

[Total No. of Pages : 5

[6027]-21

**First Year M.C.A (Management)**  
**IT 21-PYTHON PROGRAMMING**  
**(2020 Pattern) (Semester - II)**



Time : 2½ Hours]

[Max. Marks : 50

Instructions to the candidates:

- 1) All questions are compulsory.
- 2) Figures to the right indicate full marks.

**Q1) A) Choose the correct option (½ marks each) [10]**

- a) Which of the following is not an immutable data type?
- |            |            |
|------------|------------|
| i) Set     | ii) String |
| iii) Tuple | iv) Byte   |
- b) Which of the following is an immutable as well as unordered collection?
- |                 |                |
|-----------------|----------------|
| i) Set          | ii) String     |
| iii) Dictionary | iv) Frozen set |
- c) What is the output of this expression  $2**3**2$ ?
- |         |           |
|---------|-----------|
| i) 64   | ii) 512   |
| iii) 12 | iv) Error |
- d) The keyword that is used to define the block of statements in function?
- |           |                 |
|-----------|-----------------|
| i) def    | ii) funBlock    |
| iii) fune | iv) defFunction |
- e) Which of the following is not a correct way of importing math module?
- |                        |                         |
|------------------------|-------------------------|
| i) import * from math  | ii) from math import *  |
| iii) import math as mt | iv) from math import pi |

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- f) The command that is used to install a third-party module in Python is
  - i) pip
  - ii) import
  - iii) py
  - iv) install
- g) To include the use of functions which are present in the random library, we must use the option.
  - i) random.h
  - ii) import.random
  - iii) import random
  - iv) random.random
- h) Which of the following statements can be used to check, whether an object "obj" is an instance of class A or not
  - i) obj.isinstance(A)
  - ii) A.isinstance(obj)
  - iii) isinstance(obj, A)
  - iv) isinstance(A, obj)
- i) The members of a class, by default are
  - i) Public
  - ii) Private
  - iii) Protected
  - iv) Static
- j) What is the syntax to lookup the maruti attribute in an object stored in the variable car?
  - i) car → maruti
  - ii) car :: maruti
  - iii) car.maruti
  - iv) car ['maruti']
- k) Which character stand for starts with in regex?
  - i) &
  - ii) \$
  - iii) ^
  - iv) #
- l) Which of the following special characters matches a pattern only at the end of the string?
  - i) \B
  - ii) \X
  - iii) \Z
  - iv) \A
- m) What is the method name to retrieve the list of all active threads?
  - i) enumerate()
  - ii) threads()
  - iii) getlist()
  - iv) getThreads()





- n) Command to keep thread in sleep mode?
- i) Thread.Sleep
  - ii) Thread-Sleep
  - iii) ThreadSleep
  - iv) thread-sleep
- o) \_\_\_\_\_ method is used to know the current file cursor position within the file.
- i) tell()
  - ii) seek()
  - iii) offset()
  - iv) Cursor()
- p) \_\_\_\_\_ represents column in NoSQL.
- i) Field
  - ii) Document
  - iii) Database
  - iv) Collection
- q) The most important object defined in NumPy is an N-dimensional array type called?
- i) narray
  - ii) Ndarray
  - iii) ndarray
  - iv) NdArray ()
- r) The object that is returned after reading CSV file in pandas is \_\_\_\_\_
- i) Character vector
  - ii) Panel
  - iii) DataFrame
  - iv) None
- s) Which of the following is used for line graph?
- i) plt.line ()
  - ii) plt.bar
  - iii) plt.plot
  - iv) plt.scatter
- t) Which of the following is the standard data missing marker used in pandas?
- i) Null
  - ii) None
  - iii) Nan
  - iv) All



- Q2) a) Write a program to check if the input year is leap year or not. Validate the input. [3]
- b) Write a program to find the factorial of a number using recursion. [3]
- c) What is inheritance? Explain the concept of multiple inheritance with the help of suitable example. [4]

OR

- a) What is tuple? What is the difference between list and tuple? Explain with example. [3]
- b) Write a program to print the sum of natural numbers using recursion. [3]
- c) What is inheritance? Explain the concept of multilevel inheritance with the help of suitable example. [4]

- Q3) a) Write a program to reverse each word of "data.txt" file. [2]
- b) Write a python program using MongoDB database to create a "Books" collection having fields: title, Author (a list), Publisher, PubAddress, (a dict with keys like area, city, country), Price, ISBN. Accept input from user to insert documents. [3]
- c) Write a mongoDB program to update the "Books" collection given in Q.No. 3-b. [2]
- d) Write a program to accept decimal number and print its octal and hexadecimal equivalent. [3]

OR

- a) Write a program to read the contents of file and display occurrence of given character. [2]
- b) Write a python program using mongoDB database to create a "student" collection having fields: Student-ID, Name, Course, Mobile, Address. (a dict with keys like area, city, country, pin) Accept input from user to insert documents. [3]
- c) Write a MongoDB program to delete selected documents given in Q.No.3b. [2]
- d) What is dictionary in Python? Explain with examples. [3]



- Q4) a) Write a program to validate email address using regular expression. Also explain the meaning of each and every special character of the regular expression used by you in this program. [4]
- b) Write user defined exception program in python which will except age as an input from the user and check whether the user is eligible for voting or not. If age < 18 it should raise the exception as 'Not eligible for voting'. [4]
- c) Write a Note on : Modules and packages in Python. [2]

OR

- a) Write a program to validate URL using regular expression. Also explain the meaning of each and every special character of the regular expression used by you in this program. [4]
- b) Write multithread program, where one thread prints square of a number and another thread prints cube of numbers. Also display the total time taken for execution. [4]
- c) Explain anonymous function with example. [2]

- Q5) a) Create a 5×5 2D numPy array and retrieve bottom right corner 2×2 array from it. [4]
- b) Given a DataFrame df in Pandas as below: [4]

City	MaxTemp	MinTemp	RainFall
Delhi	40	32	24.1
Bengaluru	31	25	36.2
Chennai	35	27	40.8
Mumbai	29	21	35.2
Kolkata	39	23	41.8

Write commands:

- i) to compute sum of every column of the DataFrame.
- ii) to compute mean of column rainFall.
- iii) to compute Median of the MaxTemp column.
- iv) to display all column names.
- c) Explain constructors in Python. [2]
- OR
- a) Create a 4×3 numPy array and find it's column-wise mean. [2]
- b) Create a series from a numPy array and find frequency count of unique items of a series. [2]
- c) Create a pandas DataFrame using CSV file and perform a following:
- i) Display first 10 rows.
- ii) Display list of all columns. [4]
- d) Explain operator overloading in Python. [2]