Session Ending Exam 2018-19
Subject: Informatics Practices (Theory-065)-Python

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Max. Marks. 70   Time: 3Hrs.

Instructions:

- All questions are compulsory. Programming language: Python
- Read the question carefully and then answer.

SECTION-A

Q.1	Compare the calculator and computer in your words.	1
Q.2	What are two main types of cache memory?	1
Q.3	Write the names of two input and two output devices.	2
Q.4	What are the different parts of CPU? Explain every part in brief.	2
Q.5	Which of the following are hardware and software? (i) Capacitor (ii) Internet Explorer (iii) Hard disk (iv) UNIX	1
Q.6	A- Who developed python ? B- Python is case sensitive or not . C- Python is Open Source Software , What do you understand by open source .	1 1 1
Q.7	What are the supported data types of python.	2
Q.8	A- Predict the output of – print str [2:5] if str = 'hello word' B- Predict the output – print str*2 if str = ' Kendriya'	2 1
Q.9	Write a Python program to display the first and last colors from the following list. List1 == ["violet", "indigo", "blue", "green", "yellow", "orange", "red"]	2
Q.10	What is the purpose of ** and * .	2
Q.11	What is the purpose of pass statement.	1
Q.12	What is the difference between lists and tuples? Give an example for their usage.	2
Q.13	Explain the purpose of loop structures in a programming language. Describe the syntax and semantics of one loop structure provided by Python.	3

Q.14	What is String? How do you create a string in Python?	2
Q.15	Area of triangle is given by the formula:- √(s a)(s – b)(s – c) where a, b and c are the sides of the triangle and s=(a+b+c)/2. Write a program in Python to compute the area of the triangle.	3
Q.16	Write a program to check whether entered string is palindrome or not.	3
Q.17	Write a line of code to execute infinite loop in python.	1
Q.18	Write the python program to convert temperature from Fahrenheit to Celsius.	2
Q.19	Write a Python program to print multiplication table from 2 to 10.	2
	SECTION-B	
Q.22	Whether Series is a one-dimensional labeled array capable of holding any data type.	1
Q.23	Write the output for following python code – Def calc () : Return [lambda x : i * x for i in range(4)] Print [m(2) for m in calc()]	3
Q.24	Write the code to sort an array in NumPy by the (n-1)th column?	2
Q.25	Write two features of a dictionary.	2
Q.26	What are the three types of import statement in Python? Explain.	3
Q.27	Define the following : Series and Data frame.	2
Q.28	Write the program to convert a panda module series to python list and its types.	2

Q.29	What will be the output of the below code:
	 def foo (i= [ ]):
	 i.append (1)
	 return i
	 >>> foo ()
	 >>> foo ()
		2

	SECTION C	
Q.30	What are the common MySQL functions?	1

Q.31	What is the difference between primary key and candidate key?	2
Q.32	What do DDL, DML, and DCL stand for?	2
Q.33	Create a table for following structure – ``` Field	Type	Null	Key	Default	Extra | +---------+-------------+------+-----+---------+-------+ | name	varchar(20)	YES		NULL	
owner	varchar(20)	YES		NULL	
species	varchar(20)	YES		NULL	
sex	char(1)	YES		NULL	
birth	date	YES		NULL	
death	date	YES		NULL ```	2
Q.34	Difference between update and alter command	2
Q.35	Define projection in terms of mysql .	1
Q.36.	Write the appropriate usage of social networks.	1
Q.37	Define eavesdropping and phishing	2
Q.38	Difference between virus and Trojan horse	2
Q.39	What is cyber bullying .	1

Kendriya Vidyalaya Sangathan, Regional Office, Agra
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Instructions:

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SECTION-A

Q.1	Compare the calculator and computer in your words. Calculator used to perform calculation task whereas computer perform data processing task. Calculator perform specific operation with very less memory. Computer perform versatile operations.	1
Q.2	What are two main types of cache memory? Two types of caching are commonly used in personal computers: memory caching and disk caching. A memory cache (sometimes called a cache store, a memory buffer, or a RAM cache) is a portion of memory made up of high-speed static RAM (SRAM) instead of the slower and cheaper dynamic RAM (DRAM)	1
Q.3	Write the names of two input and two output devices. Input:- Keyboard, mouse Output:- Monitor, Printer	2
Q.4	What are the different parts of CPU? Explain every part in brief. **The two typical components of a CPU include the following:** The arithmetic logic unit (ALU), which performs arithmetic and logical **operations**. The **control unit** (CU), which extracts instructions from **memory** and decodes and executes them, calling on the ALU when necessary.	2
Q.5	Which of the following are hardware and software? (i) Capacitor (ii) Internet Explorer (iii) Hard disk (iv) UNIX hardware – Capacitor, Hard disk software- Internet Explorer, UNIX	1
Q.6	A- Who developed python ? **Guido van Rossum** B- Python is case sensitive or not . Yes C- Python is Open Source Software , What do you understand by open source . open source **means** that the language is not proprietary, and with certain provisions (depending on the **open source** license),**can** be modified or built upon in a manner that is **open** to the public.	1 1 1

Q.7	What are the supported data types of python. **bool**: Boolean (true/false) types. Supported precisions: 8 (default) bits. **int**: Signed **integer** types. ... **uint**: Unsigned **integer** types. ... **float**: Floating point types. ... complex: Complex number types. ... **string**: Raw **string types**. ... time: Data/time types. ... enum: Enumerated types.	2
Q.8	D- Predict the output of – print str [2:5] if str = 'hello word' E- Predict the output – print str*2 if str = ' Kendriya'	2 1
Q.9	Write a Python program to display the first and last colors from the following list. List1 == ["violet", "indigo", "blue", "green", "yellow", "orange", "red"] print (List1[0], List[6])	2
Q.10	What is the purpose of ** and * . ** is used to perform exponent. * is used to perform multiplication.	2
Q.11	What is the purpose of p{}ass statement. pass statement is used as null operation when it required syntactically and no need to execute.	1
Q.12	What is the difference between lists and tuples? Give an example for their usage. The key difference is that tuples are immutable . This means that you cannot change the values in a tuple once you have created it. As a list is mutable , it can't be used as a key in a dictionary, whereas a tuple can be used. Lists are for variable length , tuples are for fixed length	2
Q.13	Explain the purpose of loop structures in a programming language. Describe the syntax and semantics of one loop structure provided by Python. A loop statement allows us to execute a statement or group of statements multiple times. The following diagram illustrates a loop statement – Python programming language provides following types of loops to handle looping requirements.	3

Sr.No.	Loop Type & Description
1	**while loop** Repeats a statement or group of statements while a given condition is TRUE. It tests the condition before executing the loop body.
2	**for loop** Executes a sequence of statements multiple times and abbreviates the code

that manages the loop variable.

Syntax

for iterating_var in sequence:

   statements(s)

Q.14	What is String? How do you create a string in Python? String is collection of character or array of characters We can create String simply by enclosing characters in quotes. Python treats single quotes the same as double quotes. Creating strings is as simple as assigning a value to a variable. For example – var1 = 'Hello World!' var2 = "Python Programming"	2

Q.15	Area of triangle is given by the formula:- √(s a)(s – b)(s – c) where a, b and c are the sides of the triangle and s=(a+b+c)/2. Write a program in Python to compute the area of the triangle.
	
	``python
	# Python Program to find the area of triangle
	# Three sides of the triangle a, b and c are provided by the user
	
	a = float(input('Enter first side: '))
	b = float(input('Enter second side: '))
	c = float(input('Enter third side: '))
	
	# calculate the semi-perimeter
	s = (a + b + c) / 2
	
	# calculate the area
	area = (s*(s-a)*(s-b)*(s-c)) ** 0.5
	print('The area of the triangle is %0.2f' %area)
	``
		3

Q.16	Write a program to check whether entered string is palindrome or not.
	
	``python
	string=input("Enter string:")
	if(string==string[::-1]):
	    print("The string is a palindrome")
	else:
	    print("The string isn't a palindrome")
	``
		3

Q.17	Write a line of code to execute infinite loop in python.
	
	import time
	
	def your_function():
	   print("Hello, World")
	
	while True:
	   your_function()
	   time.sleep(10)
		1

Q.18	Write the python program to convert temperature from Fahrenheit to Celsius. Fahrenheit = int(raw_input("Enter a temperature in Fahrenheit: ")) Celsius = (Fahrenheit - 32) * 5.0/9.0 print "Temperature:", Fahrenheit, "Fahrenheit = ", Celsius, " C"	2

Q.19	Write a Python program to print multiplication table from 2 to 10.
	
	# Python Program to Print Multiplication Table of a Number
	num = int(input("Enter the number: "))
	print("Multiplication Table of", num)
	for i in range(1, 11):
	   print(num,"X",i,"=",num * i)
		2

	SECTION-B	
Q.22	Whether Series is a one-dimensional labeled array capable of holding any data type. Yes. Series is a one-dimensional labeled array capable of holding any data type.	1
Q.23	Write the output for following python code – Def calc () : Return [lambda x : i * x for i in range(4)] Print [m(2) for m in calc()]	3

Q.24	Write the code to sort an array in NumPy by the (n-1)th column?
	
	import numpy as np
	
	def selection_sort(x):
	   for i in range(len(x)):
	     swap = i + np.argmin(x[i:])
	     (x[i], x[swap]) = (x[swap], x[i])
	   return x
	x = np.array([2, 1, 4, 3, 5])
	selection_sort(x)
		2

Q.25	Write two features of a dictionary. A dictionary, called a dict, maps a key to a value. The key can be any type of Python object that computes a consistent hash value. The value referenced by the key can be any type of Python object. Working with a dict is similar to working with a sequence. Items are inserted into the dict, found in the dict and removed from the dict.	2

Q.26	What are the three types of import statement in Python? Explain.	3
	Python provides at least three different ways to import modules. You can use the *import* statement, the *from* statement, or the builtin __*import*__ function.	
	• **import X** imports the module X, and creates a reference to that module in the current namespace. Or in other words, after you've run this statement, you can use *X.name* to refer to things defined in module X.	
	• **from X import** * imports the module X, and creates references in the current namespace to all *public* objects defined by that module (that is, everything that doesn't have a name starting with "_"). Or in other words, after you've run this statement, you can simply use a plain *name* to refer to things defined in module X. But X itself is not defined, so *X.name*doesn't work. And if *name* was already defined, it is replaced by the new version. And if *name* in X is changed to point to some other object, your module won't notice.	
	• **from X import a, b, c** imports the module X, and creates references in the current namespace to the given objects. Or in other words, you can now use *a* and *b* and *c* in your program.	
Q.27	Define the following : Series and Data frame. Series:--Series are one-dimensional arrays that can hold any data type. The axis labels are referred to collectively as the index. DataFrames :- DataFrames are 2-dimensional labeled data structures that have columns that may be made up of different data types. DataFrames are similar to spreadsheets or SQL tables. In general, when you are working with pandas	2
Q.28	Write the program to convert a panda module series to python list and its types. ```\nimport pandas as pd\nds = pd.Series([2, 4, 6, 8, 10])\nprint("Pandas Series and type")\nprint(ds)\nprint(type(ds))\nprint("Convert Pandas Series to Python list")\nprint(ds.tolist())\nprint(type(ds.tolist()))\n```	2

Q.29	What will be the output of the below code:
	def foo (i= [ ]):
	i.append (1)
	return i
	>>> foo ()
	>>> foo ()
		2

	SECTION C	
Q.30	What are the common MySQL functions? Numeric/Math Functions like SUM, MAX, MIN **String Functions LIKE UCASE, LCASE, CONCATE**	1

Q.31	What is the difference between primary key and candidate key? Candidate Key – A Candidate Key can be any column or a combination of columns that can qualify as unique key in database. There can be multiple Candidate Keys in one table. … Primary Key – A Primary Key is a column or a combination of columns that uniquely identify a record. Only one Candidate Key can be Primary Key.	2
Q.32	What do DDL, DML, and DCL stand for? DDL:- Data Definition Language DML:- Data manipulation Language DCL:- Data Control Language	2
Q.33	Create a table for following structure – <pre>Field	Type	Null	Key	Default	Extra | +--------+-------------+------+-----+---------+-------+ | name	varchar(20)	YES		NULL	
owner	varchar(20)	YES		NULL	
species	varchar(20)	YES		NULL	
sex	char(1)	YES		NULL	
birth	date	YES		NULL	
death	date	YES		NULL</pre> Create Table Person(name varchar(20), owner varchar(20), species varchar(20) , sex char(1), birth date, death date);	2
Q.34	Difference between update and alter command **ALTER** is a DDL (Data Definition Language) statement. Whereas **UPDATE** is a DML (Data Manipulation Language) statement. **ALTER** is used to **update** the structure of the table (add/remove field/index etc). Whereas **UPDATE** is used to **update** data.	2
Q.35	Define projection in terms of mysql . *Projection* refers to that subset of the set of all columns found in a table, that you want returned. It can range anywhere from 0** up to the complete set.	1
Q.36.	Write the appropriate usage of social networks. 1) Looking and Applying for Job 2) Introduce Yourself and communication	1
Q.37	Define eavesdropping and phishing **Eavesdropping** is the unauthorized real-time interception of a private communication, such as a phone call, instant message, videoconference or fax transmission. **Phishing** the fraudulent practice of sending emails purporting to be from reputable companies in order to induce individuals to reveal personal information, such as passwords and credit card numbers.	2
Q.38	Difference between virus and Trojan horse A **Trojan horse** is not a **virus**. It is a destructive program that looks as a genuine application. Unlike **viruses**, **Trojan horses** do not replicate themselves but they can be just as destructive.	2
Q.39	What is cyber bullying . Cyber bullying the use of electronic communication to bully a person, typically by sending	1

	messages of an intimidating or threatening nature.	