KENDRIYA VIDYALAYA SANGATHAN - AHMEDABAD REGION
PRE BOARD EXAMINATION - 2019-20
SUB: COMPUTER SCIENCE (083)
Class :XII
MARKING SCHEME
MAX MARKS : 70TIME : 3 HOURS

		SECTION A	
Q1	(a)	Which of the following is valid arithmetic operator in Python: (i) ** (ii) && (iii) > (iv) and	1
		1 mark for correct answer (i) **	
	(b)	Write the type of tokens from the following: (i) for (ii) ename	1
		½ mark for each correct answer (i) keyword (ii) identifier	
	(c)	Name the Python Library modules which need to be imported to invoke the following functions: (i) date() (ii) sqrt()	1
		½ mark for each correct import (i) date (ii)math	

	(d)	Observe the following Python code very carefully and rewrite it after removing all syntactical errors with each correction underlined.
		defexecmain():
		x = input("Enter a number:")
		if (abs(x)= x):
		print("You entered a positive number")
		else:
		x=*-1
		print("Number made positive : ",x)
		execmain()
			2

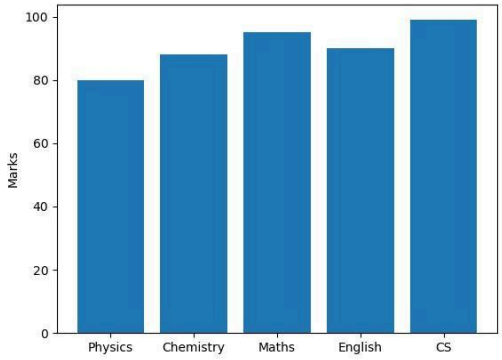
		½ mark for each correction defexecmain(): x = **int(**input("Enter a number:")**)** if (abs(x)==x): print("You entered a positive number") else**:** x*=-1 print("Number made positive : ",x) execmain()	

	(e)	Write the output of the following Python program code:
		defmakenew(mystr):
		newstr = " "
		count = 0
		for x in mystr:
		if count%2 != 0:
			2

		newstr = newstr + str(count)
		else:
		if x.islower():
		newstr = newstr + x.upper()
		else:
		newstr = newstr + x
		count += 1
		newstr = newstr + mystr[:1]
		print("The new string is:", newstr)
		makenew("sTUdeNT")	

		1 mark for correct approach and 1 mark for correct output ST11111s	
	(f)	Consider the following function calls with respect to the function definition. Identify which of these will cause an error and why? def calculate(a,b=5,c=10): return a*b-c i) calculate(12,3) ii) calculate(c=50,35) iii) calculate(20, b=7, a=15) iv) calculate(x=10,b=12)	3
		1 mark for each correct answer ii) positional argument follows keyword argument iii) multiple values for argument 'a' iv) unexpected keyword argument 'x'	
	(g)	Study the following program and select the possible output(s) from the options (i) to (iv) following it. Also, write the maximum and the minimum values that can be assigned to the variable X and Y. import random X= random.random() Y= random.randint(0,4) print(int(X),":",Y+int(X)) (i) 0 : 0 (ii) 1 : 6 (iii) 2 : 4 (iv) 0 : 3	2
		½ mark for each correct output option and ½ mark for each variable's correct max and min value (i) 0:0 and (iv) 0:3 (ii) X min=0 and max=0.99999999 Y min=0 and max=4	
Q2	(a)	Explain the work of continue statement.	1
		1 mark for correct explanation When a continue statement is encountered, the control jumps to the beginning of the loop for next iteration, thus skipping the execution of statements inside the body of loop for the current iteration.	
	(b)	Which is the correct form of declaration of dictionary? (i) Month={1:' January',2:'February',3:'March'} (ii) Month =(1;'January',2;'February',3;'March') (iii) Month =[1:'January',2:'February',3:'March'] (iv) Month ={1'January',2'February',3'March']	1
		1 mark for correct answer (i) Month={1:' January',2:'February',3:'March'}	
	(c)	Identify the valid declaration of t:	1

		t = (1, 23, ‘hi’, 6). (i) list (ii) dictionary (iii) array (iv) tuple	
		1 mark for correct answer (iv) tuple	
	(d)	Find output: If the List is : SList=[‘P’, ‘y’, ‘t’, ‘h’, ‘o’, ‘n’, ‘ ’, ‘L’, ‘i’, ‘s’, ‘t’, ‘ ’, ‘S’, ‘l’, ‘i’, ‘c’, ‘e’, ‘.’] 1) SList[5:17] 2) SList[3:12:2]	1
		½ mark for each correct output 1)['n', ' ', 'L', 'i', 's', 't', ' ', 'S', 'l', 'i', 'c', 'e'] 2)['h', 'n', 'L', 's', ' ']	
	(e)	Find output: Moves=[11, 22, 33, 44] Queen=Moves Moves[2]+=22 L=Len(Moves) for i in range (L): print “Now@”, Queen[L-i-1], “#”, Moves [i]	2
		½ mark for correct output Now@ 44 # 11 Now@ 55 # 22 Now@ 22 # 55 Now@ 11 # 44	
	(f)	How is scope of a variable resolved in Python?	1
		1 mark for correct answer L Local E Enclosed G Global B Built In	
	(g)	Write a Python program to plot a pie chart with following details activities = eat, sleep, work, play weightage = 3, 7, 8, 6 OR Give the output of the following code: import numpy as np import matplotlib.pyplot as plt objects=(‘Physics’, ‘Chemistry’, ‘Maths’, ‘English’, ‘CS’) marks=(80,88,95,90,99) y_pos=np.arange(len(objects)) plt.bar(y_pos, marks) plt.xticks(y_pos,objects) plt.ylabel(‘Marks’) plt.show()	2
		1 mark for logic, 1 mark for correct implementation import matplotlib.pyplot as plt weightage=[3,7,8,6] activities=[‘eat’, ‘sleep’, ‘work’, ‘play’] plt.pie(weightage,labels=activities) plt.show() OR *1 mark for correct ticks on axes and 1 mark for correct bars*	



	(h)	Write a function PCount() in python to count and return the number of lines in a text file 'DATA.TXT' which is starting with an alphabet 'P'. OR Write a method/function Display_three() in python to read lines from a text file STORY.TXT, and display those words, which are less than or equal to 3 characters.	2

		1 mark for logic, 1 mark for correct implementation
		defPCount():
		c=0
		f=open("DATA.TXT",'r')
		lines=f.readlines()
		for line in lines:
		if line[0]=="P":
		c+=1
		return c
		OR
		defDisplay_three():
		f=open("STORY.TXT",'r')
		lines=f.readlines()
		for line in lines:
		for word in line.split():
		if len(word)<=3:
		print(word)	

	(i)	Write a Recursive function FiboRec(n) in python to calculate and return the n^{th} term of Fibonacci series where n is passed as parameter if no argument is provided then return first term. OR Write a Recursive function SumNatural(n) in python to calculate and return the sum of first n natural numbers where n is passed as parameter if no argument is provided then return first natural number.	3

		1 mark for logic, 1 mark for correct implementation and 1 mark for correct output
		defFiboRec(n):
		if n==1:
		return 0
		elif n==2:
		return 1
		else:
		return FiboRec(n-1) + FiboRec(n-2)
		OR
		defSum_natural(n=1):	

		if n==1:
		  return 1
		else:
		  return n+Sum_natural(n-1)	

	(j)	Write a function in Python, INSERTQ(QUEUE,data,limit) and DELETEQ(QUEUE) for performing insertion and deletion operations in a Queue. QUEUE is the list used for implementing queue and data is the value to be inserted limit is the maximum number of elements allowed in QUEUE at a time. OR Write a function in python, MakePush(Information_Description,Information,size)to add a new Information and MakePop(Information_Description) to delete a Information from a List of Information_Description, considering them to act as push and pop operations of the Stack data structure.	4

		1 mark for logic, 1 mark for correct implementation for both functions
		def INSERTQ(QUEUE,data,limit):
		if len(QUEUE)<limit:
		QUEUE.append(data)
		else:
		print("Queue is Full!!!")
		
		def DELETEQ(QUEUE):
		if len(QUEUE)==0:
		print("Queue is Empty!!!")
		else:
		QUEUE.pop(0)
		OR
		defMakePush(Information_Description,Information,size):
		if len(Information_Description)<limit:
		Information_Description.append(Information)
		else:
		print("Stack OverFlow!!!")
		
		defMakePop(Information_Description) (Information_Description):
		if len(Information_Description)==0:
		print("Stack is Empty!!!")
		else:
		Information_Description.pop()	

		SECTION B	
Q3		Q3(a) to Q3(d) : Fill in the blanks	
	(a)	_____ cable has inner core that carries the signal and mesh provides ground.	1
		1 mark for correct answer Co-axial	
	(b)	_____ is a network device which is used to connect different types of networks.	1
		1 mark for correct answer Gateway	
	(c)	_____ is implemented since in wireless network collision occur if two devices transmit at the same time.	1
		1 mark for correct answer CSMA/CD (Collision Detection)	

<table>
<tr><td></td><td>(d)</td><td>_____ is the reduced quality of service that occurs when a network node or link is carrying more data than it can handle.</td><td>1</td></tr>
<tr><td></td><td></td><td>1 mark for correct answer
Network Congestion</td><td></td></tr>
<tr><td></td><td>(e)</td><td>Write full form of the following:
a) IMAP b) SMTP c) SCP d) SSH</td><td>2</td></tr>
<tr><td></td><td></td><td>½ mark for each correct expansion
a) Internet Message Access Protocol
b) Simple Mail Transfer Protocol
c) Session Control Protocol
d) Secure Shell</td><td></td></tr>
<tr><td></td><td>(f)</td><td>Write two advantages and two disadvantages of Infra Red</td><td>2</td></tr>
<tr><td></td><td></td><td>½ mark for each correct advantage and disadvantage
Advantages:
1) Line of sight
2) No Government license required
Disadvantages:
1) Waves do not cross solid obstacles.
2) Only two devices can communicate at a time</td><td></td></tr>
<tr><td></td><td>(g)</td><td>Identify the type of cyber crime in the following situations:
i) A person complaints that somebody has created a fake profile on Instagram and defaming his/her character with abusive comments and pictures
ii) A person bought an article via some e-commerce website and paid the full amount but the article was not delivered.
iii) A person complaints that his/her debit/credit card is safe with him still some body has done shopping/ATM transaction on this card.</td><td>3</td></tr>
<tr><td></td><td></td><td>1 mark for each correct answer
i) Identity theft
ii) Non-delivery of Goods
iii) Bank/ATM Fraud</td><td></td></tr>
<tr><td></td><td>(h)</td><td>Knowledge University is setting up its academic blocks at Gyan Nagar and planning to set up a network. The University has Business Block, Technology Block, Law Block and HR Block:
Centre to centre distance between various blocks:
<table>
<tr><td>Law Block to Business Block</td><td>40 m</td></tr>
<tr><td>Law Block to Technology Block</td><td>80 m</td></tr>
<tr><td>Law Block to HR Block</td><td>105 m</td></tr>
<tr><td>Business Block to Technology Block</td><td>30 m</td></tr>
<tr><td>Business Block to HR Block</td><td>35 m</td></tr>
<tr><td>Technology Block to HR Block</td><td>15 m</td></tr>
</table>
Number of computers in each of the building :
<table>
<tr><td>Law Block</td><td>15</td></tr>
<tr><td>Technology Block</td><td>40</td></tr>
<tr><td>HR Block</td><td>115</td></tr>
<tr><td>Business Block</td><td>25</td></tr>
</table>
i) Suggest with a suitable reason the most suitable place to house the server of the organization.
ii) Which device should be placed/installed in each of these blocks to efficiently connect all the computers within these blocks?</td><td>4</td></tr>
</table>

		iii) The university is planning to link its sales counters situated in various parts of the same city. Which type of the network out of LAN, MAN or WAN will be formed? iv) Which of the communication medium will you suggest to be procured by the University for connecting computers for a very effective and fast communication?	
		1 mark for each correct answer i) HR Block due to 80:20 rule ii) Hub/Switch iii) MAN iv) Optical Fiber	
		SECTION C	
Q4	(a)	Differentiate between HAVING and WHERE clause.	1
		1 mark for correct difference Where clause works in respect of the whole table whereas Having clause works on Group only. If both are used Where will be executed first.	
	(b)	Which command is used to change table definition?	1
		1 mark for correct answer ALTER TABLE	
	(c)	Which clause is used to delete data but not the table definition?	1
		1 mark for correct answer DELETE or TRUNCATE	
	(d)	What is the degree of given table 'Article' AId | Name | Quantity | Price 1 | Pen | 15 | 35 2 | Pencil | 10 | 15 3 | Ruler | 5 | 40 4 | Eraser | 3 | 10 5 | Sharpener | 5 | 12	
		1 mark for correct answer 4	
	(e)	Differentiate between GET and POST method.	2
		1 mark for each correct difference GET- append data in URL not secure POST- does not append data in URL secure	
	(f)	Write output of the following queries on the given table "Hotel". EMPID | CATEGORY | SALARY E101 | Manager | 60000 E102 | Executive | 65000 E103 | Clerk | 40000 E104 | Manager | 62000 E105 | Executive | 50000 E106 | Clerk | 35000 i)SELECT * FROM HOTEL ORDER BY SALARY DESC; ii) SELECT CATEGORY, AVG(SALARY) FROM HOTEL GROUP BY CATEGORY;	2
		1 mark for each correct output	

i)

EMPID	CATEGORY	SALARY
E102	Executive	65000
E104	Manager	62000
E101	Manager	60000
E105	Executive	50000
E103	Clerk	40000
E106	Clerk	35000

ii)

CATEGORY	AVG(SALARY)
Manager	61000
Executive	57500
Clerk	37500

(g) Write a python code to display name, age and marks of rollno=5 from table 'Student' in database 'School' hosted on MySQL server running on same PC with password 'pass' for the root user. 3

1 mark for database connection, 1 mark for correct query, 1 mark for displaying correct output

```
import mysql.connector
mydb=mysql.connector.connect(host='localhost',user='root',passwd='pass',
database='School')
mycursor=mydb.cursor()
mycursor.execute("select name, age, marks from Student where rollno=5")
for i in mycursor:
    print(i)
```

(h) Consider the tables given below and answer the questions that follow : 4

Table : Event

EventId	EventName	Date	Organizer
101	Wedding	26/10/2019	1004
102	Birthday Bash	05/11/2019	1002
103	Engagement	13/11/2019	1004
104	Wedding	01/12/2019	1003
105	Farewell	25/11/2019	1001

Table : Organizer

OrganizerId	Name	Phone
1001	Peter	9745684122
1002	Henry	9468731216
1003	Smith	9357861542
1004	Fred	9168734567

i)What will be the cardinality of Cartesian Product of the above two tables?
ii)Write SQL query to display Event and its date in chronological order.
iii)Write SQL Query to change the Phone number to 9229229229 for the organizer 'Fred'.
iv)Write a query to display Event name and Phone for all the events organized by Fred before 01/11/2019.

1 mark for each correct answer

		i) 20 ii) SELECT EventName, Date FROM Event iii) UPDATE Organizer SET Phone=9229229229 WHERE Name='Fred' iv) SELECT EventName, Phone FROM Event,Organizer WHERE Event.Organizer=Organizer.OrganizerId	
		SECTION D	
Q5	(a)	What is Cyber Crime?	1
		1 mark for correct definition Cyber Crime is defined as a crime in which a computer is the object of the crime or is used as a tool to commit an offence.	
	(b)	Explain Phishing.	1
		1 mark for correct definition Phishing is an attempt to acquire sensitive information such as usernames, passwords and credit card details by masquerading as a trustworthy entity.	
	(c)	Person A takes content from Person B's blog and publishes it on its own blog. Which kind of infringement is this? Write any two ways to avoid this type of infringement.	2
		1 mark for correct identification and ½ mark each for correct way to avoid Plagiarism 1)Use your own ideas 2) Always provide reference or give credit to the source from where the information is received.	
	(d)	What impact have been induced by technology change?	2
		1 mark for each correct change 1) Urbanization 2) Technological unemployment	
	(e)	Write advantages of using licensed software.	2
		1 mark for each advantage 1) Helps the economy generate computer related jobs. 2) Comes with outright support	
	(f)	How can we recycle E-Waste safely?	2
		1 mark for each method 1) Give E-Waste to Certified E-Waste Recycler 2) Donate your outdated technology	