Kendriya Vidyalaya Sangathan, Chennai Region
Tambaram Cluster
Pre Board Examination 2020-21
ANSWER KEY
Class: XII
Computer Science (083)

Maximum Marks: 70 Time Allowed: 3 hours

General Instructions:

1. This question paper contains two parts A and B. Each part is compulsory.
2. Both Part A and Part B have choices.
3. Part-A has 2 sections:
    a. Section – I is short answer questions, to be answered in one word or one line.
    b. Section – II has two case studies questions. Each case study has 4 case-based sub-parts. An examinee is to attempt any 4 out of the 5 sub-parts.
4. Part - B is Descriptive Paper.
5. Part- B has three sections
    a. Section-I is short answer questions of 2 marks each in which two question have internal options.
    b. Section-II is long answer questions of 3 marks each in which two questions have internal options.
    c. Section-III is very long answer questions of 5 marks each in which one question has internal option.
6. All programming questions are to be answered using Python Language only

Q.No.	**PART A**	Marks
	Section-I **Attempt any 15 questions from question no 1 to 21.**	
1	Find odd one out from the following. (a) * (b) / (c) & (d) // Ans: &	1
2	If s = “Courage to continue” what will be the output of print(s.split()) Ans: [‘Courage’,’to’,’continue’]	1
3	If l = [2,3,**5,[7,6]**,7,4] Write a slicing operation to display the underlined section of list. Ans: l[2:4]	1
4	Identify the mutable data types? (a) List (b) Tuple (c) Dictionary (d) String Ans: (a) List	1
5	If d ={1:”First”,2:”Second”,3:”Third”} Write a command to display [1,2,3] Ans: print(d.keys())	1
6	A non-key attribute, whose values are derived from primary key of some other table. (a) Alternate Key (b) Foreign Key (c) Primary Key (d) Candidate Key Ans: Foreign Key	1
7	Name any two wireless mobile communication protocols. Ans: GSM, WLL or any other correct protocol	1
8	RJ 45 connector can be used to connect (a) Twisted Pair Cable (b) Optical Fiber (c) Coaxial Cable (d) Radio communication Ans: (a) Twisted Pair Cable	1
9	Why https is considered more secured? Ans: https is more secured as the communication under this protocol is encrypted.	1
10	State true or false. (a) XML has pre-defined tags. (b) HTML is a case-sensitive language.	1

	Ans: (a) False (b) False	
11	Find the output of X = 50 def funct(X): X = 2 funct (X) print(“X is now:”X) Ans: X is now 50	1
12	State (True / False) (a) ‘Having’ clause gives condition on rows. (b) count(columnname) and count(*) would always give same result. Ans: (a) False (b) False	1
13	A table has 5 attributes and 7 tuples. What is its degree and cardinality? Ans: Degree : 5 Cardinality : 7	1
14	Riju wanted to find the date of birth of the youngest student from a table. Suggest a n aggregate function in SQL to find the youngest student. Ans: max()	1
15	Name the attack that encrypts the files and demands money for decryption of the file. Ans: Ransomware	1
16	Consider the following statement. Dict = { “Teena”:18,”Riya”:12, “Aliya”:22} How will you remove “Riya” from Dict? Ans: del Dict[‘Riya’]	1
17	Identify the data type and write if it is mutable/immutable. (a) (‘a’,’e’,’I’,’o’,’u’) Ans: Tuple. It is immutable	1
18	Which keyword of SQL is used to select unique values from a column? Ans: disctict	1
19	The traditional telephone system follows _____switching technique. Ans: Circuit Switching	1
20	Write the full form of DML and DDL. Ans: DML : Data Manipulation Language DDL : Data Definition Language	1
21	A _____ can replicate itself without any human interaction, and it does not need to attach itself to a software program in order to cause damage to computer. Ans: Worm	1

	1 mark each for correct answer	
	Section-II **Both the Case study based questions are compulsory. Attempt any 4 sub parts from each question. Each question carries 1 mark**	
22	**MobileMaster** M_Id | M_Company | M_Name | M_Price | M_Mf_Date MB001 | Samsung | Galaxy | 4500 | 2013-02-12 MB003 | Nokia | N1100 | 2250 | 2011-04-15 MB004 | Micromax | Unite3 | 4500 | 2016-10-17 MB005 | Sony | XperiaM | 7500 | 2017-11-20 MB006 | Oppo | SelfieEx | 8500 | 2010-08-21 Consider the following table named ‘data’ from a database ‘mobile’	
	(a) Write command to display the information of mobiles manufactured in 2013. Ans : select * from MobileMaster where M_MF_DATE between “2013-01-01’ and ‘2013-12-31’;	1
	(b) What will the output of the following query. SELECT COUNT(*) FROM data WHERE M_Price BETWEEN 4500 and 7500; Ans: 2	1
	(c) Abhay want to remove all the rows of the ‘data’ table. Which command will he use from the following: a) DELETE FROM data; b) DROP TABLE data; c) DROP DATABASE data; d) DELETE store FROM data; Ans: (a) delete from data;	1
	(d) Which will be the most appropriate data type for column M_Id? Ans: Char(5) / varchar	1
	(e) Write a SQL command to display number of companies whose data is present in the table. Ans: select count(distinct m_company) from data; 1 mark each for correct answer	1

23	Legend sports wanted to store the number of prizes for each sport as a SPORTS.CSV file.
	As a programmer help them to complete the task successfully.
	import _____ #Line 1
	fh=_____ # Line 2
	swriter = _____(fh) #Line 3
		4

	ans='y'
	i=1
	while ans=='y':
	  print("Record",i)
	  sport=input("Sport name")
	  prizes=int(input("Enter prizes won"))
	  _____ # Line 4
	  i=i+1
	  ans=input("Want to enter records")
	fh._____#Line 5
	
	a) Name the module to be imported in Line 1.
	Ans: csv
	
	b) Fill in line 2 to open the CSV file.
	Ans: fh = open("sports.csv","w")
	
	c) Write the correct statement to write the data into file in line 3.
	Ans: swriter = csv.csvwriter(fh)
	
	d) Write the statement to write the records given as input from user in line 4.
	Ans: swriter.writrrow([sport,prizes])
	
	e) Write a statement to close the file.
	Ans: fh.close()
	
	1 mark for each correct statement	

	Part – B	
	Section-I	
24	Evaluate the following expressions (a) 0 and 8 and 7 or 5 (b) 6 * 5+ 3**2 // 4 – 8 Ans:(a) 7 (b) 24 1 mark for each correct evaluation	2
25	Differentiate between HTML and XML	2

	HTML	XML
	Pre-defined tag	No predefined tags
	Not case sensitive	Case sensitive
	Can have empty or container tags	Can have only container tags

1 mark each for corect point of difference

OR

Explain the relationship between web browser and web server.

Ans: Web browser is a client for web server. A web browser sends a request from user to web browser. The web browser sends the required data back.

IP address identifies the location of browser and web server.

2 mark for correct answer

26 Differentiate between 3G and 4G Mobile technologies. 2

3G	4G
Speed upto 2mbps	Speed upto 20mbps
Broadband capability	4G LTE capability

1 mark each for correct point of difference

27 How variable number of parameter can be given to a Python function? 2

Ans: The variable parameters can be given using *args. It is taken in the form of a tuple.

Eg.

```
def my_sum(*args):
    result = 0
    # Iterating over the Python args tuple
    for x in args:
        result += x
    return result

print(my_sum(1, 2, 3))
```

2 marks for correct answer

	OR Differentiate between actual parameter(s) and a formal parameter(s) Ans: The parameters in the place of function call are called actual parameters. The parameters in the place of function header are called formal parameters. def addition(x, y) : addition = x+y print(addition) addition(2, 3) addition(4, 5) Here x and y are formal parameters and 2,3 or 4,5 are actual parameters. 2 marks for correct answer	

28	Rewrite the following code in Python after removing all syntax error(s). Underline each correction done in the code.
	
	Def Display(str):
	m=""
	for i in range(0,len(str)):
	if(str[i].isupper()):
	m=m+"*"
	elif islower.str[i]:
	m=m+"%"
	else:
	if i%2=0:
	m=m+str[i-1]
	else:
	m=m+#
	print(m)
	Display('Fun@Python3.0')
	
	Ans:
	
	<u>def Display(str):</u>
	m=""
	for i in range(0,len(str)):
		2

	if(str[i].isupper()):
	m=m+"*"
	elif str[i].islower():
	m=m+"%"
	else:
	if i%2==0:
	m=m+str[i-1]
	else:
	m=m+'#'
	print(m)
	Display('Fun@Python3.0')
	
	½ mark each for correct identification and correction of errors	

29	What are the possible outcome(s) executed from the following code? Also specify the maximum and minimum values of the variable NUM. import random NAV=["LEFT","FRONT","RIGHT","BACK"] NUM=random.randint(1,3) NAVG="" for C in (NUM,1,-1): NAVG=NAVG+NAV[C] print(NAVG) i) BACKRIGHT ii) BACKRIGHTFRONT iii) BACK iv) LEFTFRONTRIGHT Ans: Minimum value of NUM = 1 Maximum value of NUM = 3 Possible outcome : (i) BACKRIGHT 1 mark for correct values of NUM 1 mark for correct possible outcome	2
30	Which command in SQL is used for updating the size of data type of a existing table? What are the precautions that need to be taken while updating datatype in an existing table? Ans: Alter table command can be used to update the size of the data type in existing table. The precautions are i.The existing data must comply with the changes in data type / size. 1 mark for the correct command 1 mark for precaution	2

31	Write the command to connect Python with mysql through 'localhost' port,'root' username, 'password' as password and database to be used is 'customer'. Also create a cursor object for this connection. Ans: import pymysql con = pymysql.connect("localhost","root","root","customer") cur = con.cursor() 1 mark for correct connection 1 mark for creation of cursor	2
32	How is equi-join different from natural-join? Give example. Ans: Equi-join has common column repeated while in natural-join the common column appears only once. 1 mark for difference 1 mark for correct example	2
33	Find the output of the following Python program. def f3(a,b): global x,y x=a+b a,y=a+x,a*x print(a,b,x,y) f3(5,10) print(f3(b=x,a=y)) Ans: 20 10 15 75 165 15 90 6750 None	2

	½ mark each for first and last line of output 1 mark for second line of output	
	Section-II	

34	Given a nested list of tuples test=[(1,2),(3,4,15,5,15),(7,8,12,15)]. Write a function that displays the means of individual elements of list and then display the mean of these computed means.
	Output should be like the one given below.
	Mean element1:1.5
	Mean element2: 5.2
	Mean element3: 10.5
	Mean of means: 5.73
	Ans:
	def meanlist(test):
	ml = []
	for t in test:
	sum = 0
	for i in t:
	sum = sum + I
	ml.append(sum/len(t))
	sum = 0
	for m in ml:
	print(m)
	sum = sum + m
	print(“Mean of means:”,sum/len(ml))
	
	½ mark for correct loop to access individual elements of list
	1 mark for calculation of individual means
	1 mark for calculation of final mean
	½ mark for correct output
		3

35	Write a function in Python that copies a text file “source.txt” into “target.txt” barring the lines starting with a digit.
	
	Ans:
	def copyline():
	file1 = open(“source.txt”,”r”)
	file2 = open(“target.txt”,”w”)
	str = 1
	while(str !=’’):
	str = file1.readline()
		3

```
        if(str[0].isdigit()==False):
            file2.write(str)
    file1.close()
    file2.close()
```

1 mark for correct opening and closing of files
1 mark for correct reading
1 mark for checking and writing

OR

Write a function in Python to count the number of lines in a text file "HOMEWORK.TXT" which starts with the alphabet 'M' or 'm'.

Ans:

```
def countline():
    file1 = open("HOMEWORK.txt","r")
    str = 1
    count = 0
    while(str !=''):
        str = file1.readline()
        if(str[0] in "Mm"):
            count = count + 1
     print(count)
     file.close()
```

1 mark for correct opening and closing of files
1 mark for correct reading
1 mark for counting and display the count

36 Write the outputs of the SQL queries (i) to (iii) based on the relations PERSONAL and DETAILS. 3

RELATION: PERSONAL

INO	PNAME	ADDRESS
501	RIDDHI	CHENNAI
502	RITHVIK	BANGALORE
503	IRFAAN	CHENNAI
504	SIDDHESH	DELHI
505	KUNAL	HYDERABAD

RELATION: DETAILS

DNO	INO	AMOUNT	TYPE	DOT
D001	501	2500	Withdraw	2017-12-21
D002	503	3000	Deposit	2017-06-01
D003	502	2000	Withdraw	2017-05-12
D004	503	1000	Deposit	2017-10-22
D005	502	12000	Deposit	2017-11-06

(i) SELECT AVG(AMOUNT) FROM PERSONAL,DETAILS WHERE PERSONAL.INO = DETAILS.INO AND CITY = “CHENNAI”;

Ans:

AVG(AMOUNT)
2500

(ii) SELECT COUNT(*) FROM DETAILS GROUP BY TYPE;
Ans:

COUNT(*)
2
3

(iii) SELECT CITY,DOT FROM PERSONAL,DETAILS WHERE PERSONAL.INO = DETAILS.INO AND NAME LIKE ‘ %R%’;
Ans:

CITY	DOT
Chennai	2017-12-21
Chennai	2017-06-01
Bangalore	2017-05-12
Chennai	2017-10-22
Chennai	2017-11-06

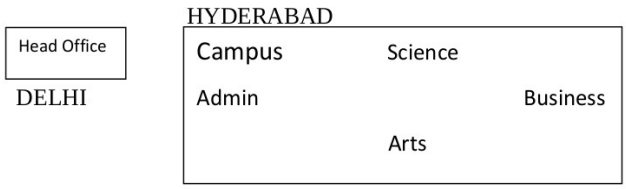
1 mark each for correct answer

37	Write a function in Python PUSH(A), where A is a list of numbers. From this list push all even numbers into a stack implemented by using a list. Display the stack if it	3

	has at least one element, otherwise display appropriate error message.
	Ans:
	s = []
	def PUSH (A):
	for i in A:
	if(i % 2 == 0):
	s.append(i)
	if(len(s)==0):
	print(“Stack Empty”)
	else:
	print(s)
	½ mark for intialisation if stack
	1 mark for loop to check the list
	½ mark for check empty stack
	1 mark for correct display
	OR
	Write a function in Python Popstack (names), where **names** is a stack implemented by a list of names. The function returns the name deleted from the stack.
	Ans:
	names=[]
	def Popstack():
	if(len(names)==0):
	print(“Stack empty”)
	else:
	n = names.pop()
	return n
	1 mark for checking empty stack
	1 mark for removing the element
	1 mark for return the deleted element	

	Section-II	
38	Xcelencia Edu Services Ltd. is an educational organisation. It is planning to set up its campus in Hyderabad with its head office at Delhi. The Hyderabad	5

campus has 4 main buildings-ADMIN, SCIENCE, BUSINESS and ARTS. You as a network expert has to suggest the best network related solutions for their problems raised in questions (i) to (v) keeping in mind the distances between the buildings and other given parameters.



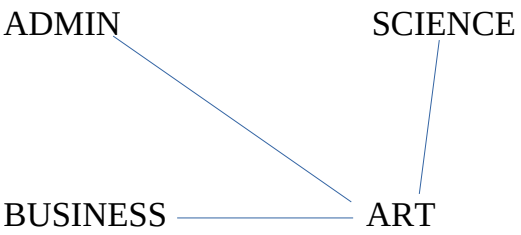
The shortest distances between the buildings is

ADMIN to SCIENCE	65 m
ADMIN to BUSINESS	100 m
ADMIN to ARTS	60 m
SCIENCE to BUSINESS	75 m
SCIENCE to ARTS	60 m
BUSINESS to ARTS	50 m
DELHI Head Office to HYDERABAD Campus	1600 km

The number of computer at each location are

ADMIN	100
SCIENCE	85
BUSINESS	40
ARTS	12
DELHI Head Office	20

(i) Draw a cable layout of the campus for connecting all the locations. Write the criteria you have opted to make the layout.
Ans:



(ii) Suggest the most suitable place to host the server in the Hyderabad campus.

Ans: The server should be placed at ADMIN building as it has maximum number of computers.

(iii) Suggest one guided and one unguided transmission media that can be used to connect various locations in Hyderabad campus.

Ans: Guided media: Twisted Pair

unguided media : Radiowave

(iv) Suggest the placement of Repeater in the network with justification.

Ans: Assuming CAT 5 cables used, no repeater is required. As per the layout no distance is more than 100m.

(v) Which of the following protocol will you suggest to establish the online face-face communication between the people in the Admin Office of Hyderabad campus and Delhi Head Office?

(a) IRC (b) SMTP (c) POP3 (d) HTTP

Ans: IRC

1 mark each for correct answer

39 Write the SQL commands for the following questions (i) to (v) based on the relations Car and Customer given below: 5

Car

Ccode	Cname	Make	Colour	Capacity	Charges
201	Triber	Renault	Yellow	7	1000
203	Altroz	Tata	Black	5	1500

208	Innova	Toyota	Silver	8	3000
209	Harrier	Tata	White	6	2000
212	Duster	Renault	Red	6	2500
217	Ertiga	Suzuki	Grey	7	2300

Customer

Custcode	Custname	Ccode
101	Gopinath	201
102	Ashok	203
103	Harshini	201
104	Vishnu	212

(i) To display the Names and Charges of all the Silver coloured cars.

Ans: Ans: select cname, charges from car where colour=”silver”;

(ii) To display the non duplicate car codes in the customer table.

Ans: select distinct ccode from customer;

(iii) To display the Minimum and Maximum car charges.

Ans: select min(chagres), max(charges) from customer;

(iv) To give a discount of 10% in the car charges for existing customers (who are in the customer table).

Ans: update car,customer set charges = charges – charges *0.1 where car.ccode = customer.ccode;

(v) To display Name and Make of cars whose charges is in the range 2000 to 3000 (both inclusive).

Ans: select cname, make from car where charges between 2000 and 3000;

1 mark each for correct answer

40	A binary file “vehicle.dat” has structure [RegNo, Type, Make, Year]. a. Write a user defined function AddVahan() to input data for a vehicle and add to “vehicle.dat” file. b. Write a function CountVahan( ) in Python which count and return the number	5

of vehicles of the each Type.

```
import pickle
def AddVahan():
    file = open("vehicle.dat","ab")
    r = input("Enter reg no")
    t = input("Enter the type")
    m = input("Enter the make")
    y = int(input("Enter the year"))
    pickle.dump(file,(r,t,m,y))
    file.close()

def CountVahan(y):
     file = open("vehicle.dat","rb")
     count = 0
     while(1):
          try:
               r  = pickle.load(file)
               if(r[3]==y):
                    count = count + 1
           except EOFError:
                break
     file.close()
     return (count)
```

1 mark for opening the file in append mode
1 mark input of data and dump in file
1 mark for opening the file to read
1 mark for correct load of data with try and except block
1 mark for correct counting and returning the count

OR

A binary file "STUDENT.DAT" has structure (admission_number, Name, Percentage). Write a function countrec() in Python that would read contents of the file "STUDENT.DAT" and display the details of those students whose name has "Kumar" in it.

Ans:

```
import pickle
def countrec():
    file = open("student.dat","rb")
    while(1):
```

```
        try:
            r = pickle.load(file)
            if(r[1] in ”Kumar”):
                print(“Admission Numer”,r[0])
                print(“Name”,r[1])
                print(“Percentage”,r[2])
        except EOFError:
                break
    file.close()
```

1 mark for correct opening of file
1 mark for correct try and except block
1 mark for correct reading record
1 mark for checking the name
1 mark for printing the details