SIMPLY CODING

COMPUTER SCIENCE - NEW (083) (Revised)
SAMPLE QUESTION PAPER 1 (2020-2021)
CLASS- XII

Max. Marks: 70   **Time: 3 hrs**

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 subparts. An examinee is to attempt any 4 out of the 5 subparts.
4. Part - B is Descriptive Paper.
5. Part- B has three sections
   c. Section-I is short answer questions of 2 marks each in which two questions have internal options.
   d. Section-II is long answer questions of 3 marks each in which two questions have internal options.
   e. 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

Part-A

Section-I

Select the most appropriate option out of the options given for each question. Attempt any 15 questions from question no 1 to 21.

1. Identify valid variable name in Python?   **[1]**
   a.   **_123**   **b. Value$**   **c. False**   **d. FOR**

   Ans. A. valid, b. invalid c invalid   d. valid

2. Which operator defines a range of values that a column values must fall in to make condition true.
                                                                                 [1]

   Ans. BETWEEN

3. The _____Address refers to the physical address assigned by NIC manufacturer.   **[1]**

   Ans. MAC (Media Access Control)

4. Which SQL function returns the number of rows in a column or expression?   **[1]**

   Ans. COUNT()

5. Name the modules to which the following functions belong: **[1]**

    i.   dump()

   ii.   writerow()

Ans. pickle

       csv

6. Write SQL query to add a column total price with datatype numeric and size 10, 2 in a table product.   **[1]**

Ans.

ALTER TABLE PRODUCT ADD TOTAL PRICE NUMBER (10,2).

7. Identify which ones are mutable and immutable in Python?   **[1]**
        a. boolean b. list c. strings d. tuples

  Ans. A. immutable   b. mutable   c. immutable d. immutable

8. Which one of these is an invalid command if L = (1,2,3)?   **[1]**

      a.   a,b,c = L
      b.   L[0] = 4
      c.   L += (5,2)
      d.   L = L*2

  Ans. b.

9. A _____ works like a bridge but can handle different protocols.   **[1]**

Ans. Router

10. Why can't Lists be used as keys in Python dictionary?   **[1]**

  Ans. Lists cannot be used as keys in a dictionary because they are mutable. And Python dictionary can have only keys of immutable types

11. If str = "amazing" What is the output of str[:] + str[-1:-3]?   **[1]**

  Ans. amazing

12. Which constraint is used to uniquely identify each row in the table?   **[1]**

Ans. PRIMARY KEY

13. Which one of these is output of these commands?   **[1]**
        L = list((1,2,3,4))
        L.insert(5,6)
        L.pop(2)
        print (L)

        a) [1,2,3,4]

b) [1,2,4,6]
c) [1,3,4,6]
d) [1,2,3]

Ans. b

14. _____ **are files stored temporarily on browser's computer which allow the server to store persistent information associated with browsing user.** **[1]**

Ans. Cookies

15. Consider the following code: what is the value of a at the end? **[1]**

```
a =[1,2,3]
a[2]= 0
a[a[2]] = 5
a[1:2] = [ ]
print(a)
```

Ans. [5, 0]

16. Which command is used to modify data in the tables? **[1]**

Ans. UPDATE

17. Name the function / method required for: **[1]**
i.   Finding second occurrence of m in madam.
ii.   Get the position of an item in the list
Ans.
i.   Find
ii.   index

18. Write a SQL query to find the names (field: NAME) of employees from table EMP that begin with 'A'? **[1]**

Ans. SELECT * FROM EMP WHERE NAME like 'A%'

19. Gita is setting up a password for her online banking account. Give 2 suggestions to her on password formation so that her account is not easily hacked. **[1]**

Ans. She should follow below guidelines.
1) Avoid names, addresses, and birth dates for your passwords/login details. Make passwords that are hard-to-guess.
2) Make sure all passwords you use include both lower-case and capital letters, numbers, and some special characters.
3) Do not use same password for multiple accounts Each of your passwords should be unique so that if one of them is compromised, the thief does not have access to anything else
4) Change passwords regularly.

20. Every file has its own identity associated with it. Which is known as – **[1]**

       a. icon
       b. extension
       c. format
       d. file type

Ans. b

21. What is remote desktop? [1]
    Ans.

Remote desktop:

- It is a separate program or feature found on most operating systems that allows a user to access an operating computer system desktop.
- The access occurs via the Internet or through another network in another geographical location and allows users to interact with that system as if they were physically at their own computer.

Section-II
Both the Case study based questions are compulsory. Attempt any 4 sub parts from each question. Each question carries 1 mark

22. Observe the following Student table and answer the part (i) to (v) accordingly. [5]

Mno	Name	Qty	Purchase date
101	Pen	102	12-12-2011
102	Pencil	201	21-02-2012
102	Eraser	90	09-08-2012
109	Sharpener	90	31-08-2012
113	Clip	900	08-08-2011

    a. In the above table, can we take Mno as Pri-mary key ? (Answer as [Yes/No] only.) Justify your answer with a valid reason.
    b. What is the degree and the cardinality of the above table?
    c. Insert the following data into the attributes Mno, Name and Qty respectively in the given table.
          Mno = 110, Name = "Pen" and Qty = 125
    d. If we remove the table student from the database School.
       Which command will he use from the following:
          a. DELETE FROM student;
          b. DROP TABLE student;
          c. DROP DATABASE School;
          d. DELETE student FROM School;

    e. Now if we wants to display the structure of the table student, i.e, name of the attributes and their respective data types that he has used in the table. Write the query to display the same.

    Ans.
    a. No [Hint: Because Pencil and Eraser are having the same Mno = 2. Primary key needs to be unique]
    b. Degree = 4
       Cardinality = 5
    c. INSERT INTO student (Mno, Name, Qty) VALUES(110, "Pen",125);

   d. b

   e. Describe student;

23. Geet has a csv file which has the name and class of students. She is asked to input the marks for each of them from user and write to a new csv file. As a programmer, help her to successfully execute the given task. **[5]**

```
import csv

file = open('marks.csv', 'w', __a__ );
wt = csv.___b___(file)

with open('student.csv') as csvfile:
 data = csv.___c___(csvfile)
 for row in data:
   print ("Student name:",row[0],"Class:",row [1])
   marks = int (___d___("Enter Total marks: "))
   wt.___e___([row[0],row[1],marks])

file.close()
```

a. Fill in blank with parameter to be passed to remove the extra newline character
b. Name the csv method which returns the object responsible for converting user's data into delimited strings
c. Name the csv method which return a object to iterate over lines in the given csvfile
d. Give the command to take in value from user.
e. Name the method to write to csv file.

Ans.

```
import csv

file = open('marks.csv', 'w', newline="" );
writer = csv.writer(file)

with open('student.csv') as csvfile:
 data = csv.reader(csvfile)
 for row in data:
   print ("Student name:",row[0],"Class:",row [1])
   marks = int (input ("Enter Total marks: "))
   writer.writerow([row[0],row[1],marks])

file.close()
```

Part – B
Section-I

24. Rewrite the following code in python after removing all syntax error(s). Underline each correction done in the code. **[2]**

```
i=10
n=100
 while [i<=n]:
   print i
i+=10
```

Ans.
```
i=10
n=100
while(i<=n):
    print (i)
    i+=10
```

25. Give Full forms of the following? [2]

1.WLL, 2. IMAP, 3. HTTPS, 4. SSL

Ans.

1. WLL- Wireless Local Loop
2. IMAP- Internet Message Access Protocol
3. HTTPS - Hypertext Transfer Protocol Secure
4. SSL- Secure Sockets Layer

26. Find and write the output of the following python code: [2]

```
n=26
v=0
while(n > 0):
   a= n % 10
   v=(v * 10)+a
   n=n // 10
print(v)
```

Ans   Output:
62

27. What is the difference between where and having clause? [2]

Ans.

WHERECLAUSE	HAVINGCLAUSE
Places condition on individual rows.	Places conditions on group of rows.
Cannot include aggregate function.	Can include aggregate function.
For eg. SELECT * FROM customer WHERE CID >=1000;	**For eg.** SELECT AVG(sales) FROM customer GROUP BY city HAVING city = 'Pune';

28. Find and write the output of the following python code: [2]

```
v =[1,2]
def manip (values):
```

6

```
        for i in range(1,4):
            values.append(i)
            print(values)
    manip(v)
```

Ans.

```
    [1, 2, 1]
    [1, 2, 1, 2]
    [1, 2, 1, 2, 3]
```

29. Define the following : **[2]**

Candidate key: It is a column (or columns) that uniquely identify rows in a table. Any of the identified candidate keys can be used as the table's primary key.

Alternate key : A candidate key that is not the primary key is called an Alternate Key.

30. What is the output of this program? **[2]**

```
    for i in range(1,11):
        if(i==3):
            print("hello", end=' ')
            continue
        if(i==8):
            break
        if(i==5):
            pass
        else:
            print(i, end=' ');
```

Ans. 1 2 hello 4 6 7

31. What is the difference between SMTP and POP3 protocol? **[2]**

Ans.

SMTP protocol	POP3 protocol
SMTP also known as Simple Mail Transfer Protocol, is part of the application layer of the TCP/IP protocol which is primarily used by following a process called "store and forward". SMTP moves email on and across networks based on Mail Transfer Agent (MTA) to send communication to the right computer and email.	On other hand POP3, which is an abbreviation for Post Office Protocol 3, is again a protocol used for receiving email. Much like the physical version of a post office clerk, POP3 receives and holds email for an individual until they pick it up.
As mentioned in the above point, SMTP is designed for sending the mails.	On other hand, POP3 is being designed for receiving the mails.

32. What are DDL and DML commands? **[2]**
Ans.

DDL is short form of Data Definition Language statements are used to build and modify the structure of database, tables and other objects in the database. When you execute a DDL statement, it takes effect immediately. Some of the commands comprising DDL are CREATE TABLE, DROP TABLE and CREATE INDEX.

DML is abbreviation of Data Manipulation Language. It is used to retrieve, store, modify, delete, insert and update data in database. Examples: SELECT, UPDATE, INSERT statements.

33. Rewrite the following programs after removing syntactical errors: **[2]**

```
for=20
for1=50:
for3=for+for1+for2
print(for3)
```

Ans.

```
f=20 #( as for is a keyword in python)
for1=50 #(: can not be used here)
for3=f+for1 #(for2 not defined)
print(for3)
```

Section- II

34. Write a program to find that the given number is prime numbers or not.   **[3]**

Ans.

```
n = int(input("Enter the number"))
i = 2
count = 0
while (i < n):
    if (n%i)==0:
        count = 1
        print (n,"not prime")
        break
    i = i+ 1
if count ==0 :
    print ( n,"is prime")
```

35. Write a function that takes in two text files and copies all lines from first file to second, barring the lines starting with "a".

Ans.
```
def filter(oldfile,newfile):
    fin=open(oldfile,"r")
    fout=open(newfile,"w")
    while True:
        text=fin.readline()
        if len(text)==0:
            break
```

```
        if text[0]=="a":
            continue
        fout.write(text)
    fin.close()
    fout.close()
```

OR

Write a program to count the words "to" and "the" present in a text file "python.txt".   **[3]**

Ans.

```
fname = "python.txt"
num_words = 0
with open(fname, 'r') as f:
  for line in f:
      words = line.split()
      num_words += len(words)
print("Number of words:")
print(num_words)
```

36. Consider the following tables WORKER and PAYLEVEL and answer this question:

Table : WORKER

ECODE	NAME	DESIGN	PLEVEL	DOJ	DOB
11	Radhe Shyam	Supervisor	P001	13-Sept-2004	23-Aug-1981
12	Chander Nath	Operator	P003	22-Feb-2010	12-Jul-1987
13	Fizza	Operator	P003	14-Jun-2009	14-Oct-1983
15	Ameen Ahmed	Mechanic	P002	21 –Aug-2006	13-Mar-1984
18	Sanya	Clerk	P002	19-Dec-2005	09-Jun-1983

Table: Paylevel

Plevel	Pay	Allowance
P001	26000	12000
P002	22000	10000
P003	12000	6000

Give the output of the following SQL queries :   **[3]**

1. SELECT COUNT (PLEVEL), PLEVEL FROM WORKER GROUP BY PLEVEL;
2. SELECT Name,PAY FROM WORKER
   W,PAYLEVEL P WHERE W.PLEVEL=
   P.PLEVEL AND W.ECODE<13;
3. SELECT COUNT (DISTINCT DESIGN) FROM WORKER;

Ans.
1)

Count(Plevel)	Plevel
1	P001
2	P002
2	P003

9

2)

Name	Pay
Radhe Shyam	26000
Chander Nath	12000

3)

COUNT (DISTINCT DESIGN)
4

37. Write a program to perform insert and delete a Queue containing Members details as given in the following definition of each item: **[3]**

              MemberName   **String**
              Age   **integer**

Ans.

```python
def INSERTQ(Arr):
        MemberName=input("enter data to be inserted: ")
        age=int(input("enter data to be inserted: "))
        data = [MemberName, age]
        Arr.append(data)
def DELETEQ(Arr):
        if (Arr==[]):
            print( "Queue empty")
else:
        print ("Deleted element is: ",Arr[0])
        del(Arr[0])
```

OR

Obtain the postfix notation for the following infix notation of expression showing the contents of the stack and postfix expression formed after each step of conversion. **[3]**
A*B +(C-D/F)

Ans.
Let us rewrite like (A*B +(C-D/F))

Scanned Elements	Operation	Stack Status
(	(	
A	(	A
*	(*	A
B	(*	AB
+	(+	AB*
(	(+ (	AB*
C	(+ (	AB*C
-	(+ (-	AB*C

D	(+ (-	AB*CD
/	(+ (- /	AB*CD
F	(+ (- /	AB*CDF
)	(+	AB*CDF/-
)		AB*CDF/- +

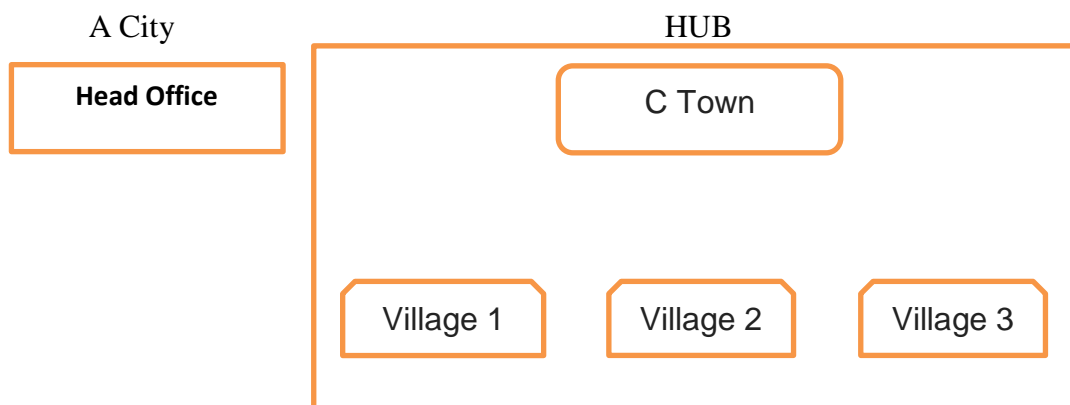Output AB*CDF/-+

<div align="center">

Section- III

</div>

38. Write answer of the following: **[5]**

Simply Coding is a computer institute aimed to uplift the standard of computer knowledge in the society. It is planning to setup its training centres in multiple towns and villages pan India with its head offices in the nearest cities. They have created a model of their network with A city, C Town and 3 Villages as given.

As a network consultant, you have to suggest the best network related solution for their issues/problems raised in (i) and (v) keeping in mind the distance between various locations and given parameters.

A City   HUB

Head Office

C Town

Village 1   Village 2   Village 3

Shortest distance between various locations:

Village 1, 2, 3 to C Town	1 to 2 km
Distance between the villages	3 – 4 km
City Head Office to C Town	50 km

Number of computers installed at various locations are as follows:

C Town	50
Village 1	10
Village 2	15
Village 3	8
City Office	25

1. Suggest the most appropriate location of the SERVER in the HUB (out of the 4 locations), to get the best and effective connectivity. Justify your answer.
2. Suggest a suitable network topology between the villages and the town.
3. Suggest the best wired medium to efficiently connect various villages with town in the HUB

4. Which hardware device will you suggest to connect all the computers within each location of HUB?
5. Which server/protocol will be most helpful to conduct live interaction of Experts from Head office and people at YHUB locations?

Ans.
1. C TOWN as it has the maximum number of computers and it is closest to all other locations.
2. STAR
3. Co-Axial cable is recommended however faster speeds Optical fibre can also be used.
4. Switch or Hub
5. Video conferencing or VoIP or any other correct service/protocol.

39. Answer the questions on the basis of the following tables SHOP and ACCESSORIES.

Table : **Shop**

Id	SName	Area
S01	ABC computronics	CP
S02	All Infotech Media	GK II
S03	Tech Shop	CP
S04	Geeks Tecno Soft	Nehru Place
S05	Hitech Tech Store	Nehru Place

Table : Accessories

No	Name	Price	Id
A01	Mother Board	12000	S01
A02	Hard Disk	5000	S01
A03	Keyboard	500	S02
A04	Mouse	300	S01
A05	Mother Board	13000	S02
A06	Keyboard	400	S03
A07	LCD	6000	S04
T08	LCD	5500	S05
T09	Mouse	350	S05
T10	Hard Disk	4500	S03

Write the SQL queries: [5]
1. To display Name and Price of all the Accessories in ascending order of their Price.
2. To display Id and SName of all Shop located in Nehru Place.
3. To display Minimum and Maximum Price of each Name of Accessories.
4. To display Name, Price of all Accessories and their respective SName where they are available.
5. To display the price, Name and Id of those Accessories which have Id is S04.

Ans:

1. SELECT Name, Price FROM ACCESSORIES ORDER BY Price Asc;
2. SELECT ID, SName FROM SHOP WHERE Area="Nehru Place";
3. SELECT Name, max (Price), min(Price) FROM ACCESSORIES Group By Name;
4. SELECT Name, price, Sname FROM ACCESSORIES, SHOP WHERE SHOP.ID=ACCESSORIES.ID;
5. SELECT PRICE, INAME, Id FROM ACCESSORIES WHERE (ID= S04);

40. A binary file "PHONE.DAT" has structure [Name, PhoneNo]. Write a function append() to add more records to the file and a function update() to edit the phone numbers of "Ronit" in file. If there is no record for "Ronit" report error. **[5]**

```python
import pickle

def append():
    outfile = open('phone.dat', 'ab')
    while True:
        name = input('Enter name: ')
        no = int(input('Enter Phone No: '))

        phoneno = [name,no]
        pickle.dump(phoneno, outfile)
        ans=input("Want to enter more data Y/N")
        if ans.upper()=='N':
            break
    #close the file
    outfile.close()

def update():
    f = open("phone.dat","rb+")
    no = int(input("Enter No to update:"))
    f.seek(0)
    flag = 0
    try:
        while True:
            current_pos = f.tell()
            data= pickle.load(f)
            if data[0].lower()=="ronit":
                flag = 1
                data2 = [data[0],no]
                f.seek(current_pos)
                pickle.dump(data2,f)
                break
    except Exception:
        f.close()
        if(flag == 0) :
            print ("Error: Name not found")

append()
update()
```