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
   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

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 the following Python token?
a. and b. _value c. True d. <= **[1]**

Ans. a. Keyword, b. Variable c Boolean Literal d. Operator

2. Give 2 wild cards which can be used for pattern matching along with LIKE? **[1]**

Ans percent(%) to match substring, underscore (_) to match any character.

3. _____ cable consist of bundle of glass threads each of which is capable of sending messages on light waves. **[1]**

Ans. Fibre Optics

4. Name the Python Library modules which need to be imported to invoke the following functions : **[1]**

i. randint( )

ii. getcwd ( )

Ans. random
os

5. A _____is a device that lets you link two networks together. **[1]**

Ans. bridge

6. _____ is used for collision handling in wireless networks. **[1]**

Ans. CSMA/CA (Carrier Sense Multiple Access/Collision Avoidance)

7. Which of the following statements can have optional else clause? **[1]**
a) if b. for c. while d. All of the above

Ans. d is correct.

8. To diagnose DNS name resolution problems, _____ command can be used. **[1]**

Ans. NSLOOKUP

9. If string str = "amazing" what is the output of str[:4] + str[4:] ? **[1]**

Ans. amazing

10. Which one of these is output of these Python commands? **[1]**

```
L = [1,3,5,3,1]
L.remove(3)
L.extend([3])
print (L)
```

a) [1,5,1,3]
b) [1,5,3,1,3]
c) [1,3,3,3,3]
d) [1,3,3]

Ans. b

11. What is the use of Alter Command? **[1]**

Ans. The ALTER command is used to change the definition of existing table. It can be used to add columns to a table. Also to modify existing columns of a table

12. How do we convert the string to lowercase? **[1]**
Ans. lower() function is used to convert string to lowercase.

Example:

```
str = 'XYZ'
print(str.lower())
```

Output:

```
xyz
```

13. To read/write into binary file _____ module of python is used? **[1]**

Ans. pickle

14. What is None literal in Python? **[1]**

Ans. Python has one special literal called "None". It is used to indicate something that has not yet been created. It is a legal empty value in Python.

15. Name any 4 networking/ internetworking devices? **[1]**

Ans. Networking/ internetworking devices: Repeater, Bridges, Routers, Hub, Switch, Gateways.

16. Which string method is used to implement the following: **[1]**

i. To check whether given character is letter or a number.
ii. To change lowercase to uppercase letter.

Ans.

i. ch.isalnum()
ii. str.upper()

17. Which clause is used to sort records of a table? **[1]**

Ans. ORDER BY

18. Which of the following file types allows us to store large data files in the computer memory? **[1]**

a. Text Files
b. Binary Files
c. CSV Files
d. None of these

Ans. b

19. Which data structure is used in SQL to make the search queries faster? **[1]**

Ans. INDEX

20. Which constraint ensures all values of column are different? **[1]**

Ans. UNIQUE

21. Which of the following types of table constraints will prevent the entry of duplicate rows? [1]

a. Unique
b. Distinct
c. Primary Key
d. NULL

Ans. c

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 table carefully and Answer the following questions. [5]

Id	Product	Qty	Price	Transaction Date
103	Plastic Folder 12“	150	3400	2014-12-17
102	Pen Stand Standard	200	4500	2015-02-21
107	Stapler Medium	350	1200	2015-03-14
112	Punching Machine Big	100	1400	2015-04-10
106	Stapler Mini	170	1500	2015-01-03

a. Which can be considered as candidate key and primary key?
b. What is degree and cardinality of table?
c. Insert a row in the given table.
   Id = 109, Product = “Stapler”, Qty = 120, price= 4581 and Transaction Date= 2015-10-30
d. If we wants to display the structure of the table Product_Table from Store database.

   Which command will be use from the following:

   i. Select*from Product_Table;
   ii. Describe Product_Table;
   iii. Select*from Product_Table;
   iv. View * from Product_Table;

e. Remove the table Product_Table from the database Store. Write a query for same.

Ans.

a. Candidate keys : Id, Product
   Primary keys: Id
b. Degree= 5 and cardinality= 5
c. INSERT INTO Product_Table VALUES (109, “Stapler”, 120, 4581, ‘2015-10-30’);
d. ii. Describe Product_Table;

e. DROP TABLE Product_Table;

23. Ronit has a CSV file "marks.csv" which has name, class and marks separated by comma. He is writing a Python program to copy only the name and class to another CSV file "class.csv". He has written the following code. As a programmer, help him to successfully execute the given task. [5]

```
import csv
file = open('class.csv',  a  , newline="");
writer = csv.writer(file)

 b  open('marks.csv') as csvfile:
  data = csv.  c  (csvfile)
  for row in data:
    writer.writerow([  d  ,  e  ])

file.close()
```

a. In which mode should Ronit open the file to make a new file?
b. Which Python keyword should be used to manage the file stream?
c. Fill in the blank in Line 3 to read the data from a csv file.
d. Fill in the blank to write name into marks.csv
e. Fill in the blank to write class into marks.csv.

Ans.

```
import csv
file = open('class.csv', 'w', newline="");
writer = csv.writer(file)

with open('marks.csv') as csvfile:
 data = csv.reader(csvfile)
 for row in data:
   writer.writerow([row[0],row[1]])

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 = 0
```

```
while i < 10
      if i % 2 = 0:
         print(i,"is even")
      elif:
         print (i,"is odd")
 i = i + 1
```

Ans.

```
i = 0
while i < 10:
      if i % 2 == 0:
         print(i,"is even")
else:
   print (i,"is odd")
i = i + 1
```

25. Give full forms of the following? **[2]**

1. CSMA, 2. POP, 3. LAN, 4. URL

Ans.

1. CSMA-Carrier Sense Multiple Access
2. POP-Post Office Protocol
3. LAN-Local Area Network
4. URL-Uniform Resource Locator

26. Convert the following while loop into for loop. **[2]**

```
char=""
print ("press n to stop")
i = 0
while not char =="n" and not i > 10:
   print("continue?")
   char  =input('enter char')
```

Ans.

```
i += 1
Ans. char=""
print ("press n to stop")
for i in range(10):
   if not char== 'n':
      print("continue?")
      char = input('enter char')
```

27. What is relation? What is the difference between a tuple and an attribute? **[2]**

Ans. A relation is a two-dimensional table. It contains number of rows (tuples) and columns (attributes).

Tuple are the horizontal rows of the relation. One row represents one record of the relation. The columns of a relation are also called attributes. Typically all attributes are of a similar data types.

28. What is the difference between HTTP and HTTPS? **[2]**

Ans.

HTTPS is HTTP with encryption. HTTP stands for Hypertext Transfer Protocol, while HTTPS stands for Hypertext Transfer Protocol Secure, The difference between the two protocols is that HTTPS uses TLS (SSL) to encrypt normal HTTP requests and responses. As a result, HTTPS is far more secure than HTTP. A website that uses HTTP has http:// in its URL, while a website that uses HTTPS has https://.

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

```
i = 0
while i < 6:
    if i % 2 == 0:
        print (i," is even")
    else:
        print (i," is odd")
        i = i + 1
```

Ans. Output:

```
0  is even
1  is odd
2  is even
3  is odd
4  is even
5  is odd
```

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

```
def increment(n):
    n.append(['9'])
    return n[0],n[1],n[2],n[3]
L=[3,5,7]
m1,m2,m3,m4=increment(L)
print(L)
print(m1,m2,m3,m4)
```

Ans.

```
[3, 5, 7, ['9']]
3 5 7 ['9']
```

31. What is difference between tell() and seek() methods **[2]**

Ans.

tell( ): It returns the current position of cursor in file.

Example:

```
fout=open("story.txt","w")
fout.write("Welcome Python")
print(fout.tell( ))
fout.close( )
```

Output:

```
14
```

seek(offset) : Change the cursor position by bytes as specified by the offset.

Example:

```
fout=open("story.txt","w")
fout.write("Welcome Python")
fout.seek(5)
print(fout.tell( ))
fout.close( )
```

Output:

```
5
```

32. Differentiate between DDL and DML commands? **[2]**

Ans.

DDL	DML
DDL is used to create the database schema.	DML is used to populate and manipulate database
Data Definition Language	Data Manipulation Language
CREATE, ALTER, DROP, TRUNCATE AND COMMENT and RENAME, etc.	SELECT, INSERT, UPDATE, DELETE, MERGE, CALL, etc.
Commands affect the entire database or the table	Commands affect one or more records in a table

33. Differentiate between DELETE and DROP table commands? **[2]**

Ans.

DELETE command is used to remove information from a particular row or rows. If used without condition, it will delete all row information but not the structure of the table. It is a DML command.
DROP table command is used to remove the entire structure of the table and information. It is a DDL command

Section- II

34. Write a program to compute GCD and LCM of two numbers **[3]**

Ans.

```
def gcd(x,y):
    while(y):
```

```
            x, y = y, x % y
        return x
def lcm(x, y):
        lcm = (x*y)//gcd(x,y)
        return lcm
num1 = int(input("Enter first number: "))
num2 = int(input("Enter second number: "))
print("The L.C.M. of", num1,"and", num2,"is", lcm(num1, num2))
print("The G.C.D. of", num1,"and", num2,"is", gcd(num1, num2))
```

35. Write a program to count the number of upper-case alphabets present in a text file "PYTHON.TXT"

Ans.

```
def Lower(infile,outfile):
   output=open(outfile,"w")
   file=open(infile)
   for line in file:
      if line[0] in "aeiouAEIOU":
         output.write(line)
   output.close()
   file.close()
```

OR

Write a function which takes in an input file and output file. It copies all lines which starts with vowels from the input file to output file. [3]

Ans.

```
string=input("Enter string:")
count=0
for i in string:
    if(i.isupper()):
        count=count+1
print("The number of uppercase characters is:")
print(count)
```

36. Change the following infix expression into postfix expression (A+B)*C + D/E –F [3]

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

Scanned Elements	Operation	Stack Status
(	(	
(	((	
A	((	A
+	((+	A
B	((+	AB
)	(	AB+

*	(*	AB+
C	(*	AB+C
+	(+	AB+C*
D	(+	AB+C*D
/	(+ /	AB+C*D
E	(+ /	AB+C*DE
-	(-	AB+C*DE/+
F	(-	AB+C*DE/+F
)		AB+C*DE/+F-

Ans. Output AB+C*DE/+F-

OR

Write a program to delete an element from a sorted linear list. **[3]**

Ans.

```
def Bsearch(AR,ITEM):
    beg = 0
    last = len(AR) - 1
    while(beg <= last):
       mid=(beg + last)//2
       if(ITEM == AR[mid]):
          return mid
       elif(ITEM > AR[mid]):
          beg = mid + 1
       else:
           last = mid - 1
    else:
          return False

myList=[10,20,30,40,50,60,70]
ITEM=int(input("Enter element to be deleted:"))

position=Bsearch(myList,ITEM)
if position:
   del myList[position]
   print("The list after deleting",ITEM,"is")
   print(myList)
else:
   print("Element not in the list")
```

37. 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 output of the following SQL **[3]**

1. SELECT DISTINCT NAME FROM ACCESSORIES WHERE PRICE> =5000;
2. SELECT AREA, COUNT(*) FROM SHOPPE GROUP BY AREA;
3. SELECT NAME, PRICE*0.05 AS DISCOUNT FROM ACCESSORIES WHERE SNO IN (‘S02‘,S03‘);

Ans:

(1)

Name
Mother Board
Hard Disk
LCD

(2)

Area	Count (*)
CP	**2**
GK II	**1**
Nehru Place	**2**

(3)

Name	Discount
Keyboard	**25**
Motherboard	**650**
Keyboard	**20**
Harddisk	**225**

Section III

38. XYZ company is setting a new branch in India with its hub at Indore. As a network adviser, you have to understand their requirement and suggest them the best available solutions. Their queries are mentioned as (i) and (ii) below. [5]

Physical Locations of the blocked of XYZ

Block to Block Distances(in Mtrs)

Block from	Block To	Distance
Human Resource	Conference	100
Human Resource	Finance	50
Conference	Finance	85

i. What will be the most appropriate block, where XYZ should plan to install their server?

ii. Draw a block to cable layout to connect all the buildings in the most appropriate manner for efficient communication.

iii. What will be the best possible connectivity out of the following, you will suggest to connect the new setup with its Tokyo based office:
   a. Satellite Link
   b. Infrared
   c. Ethernet Cable

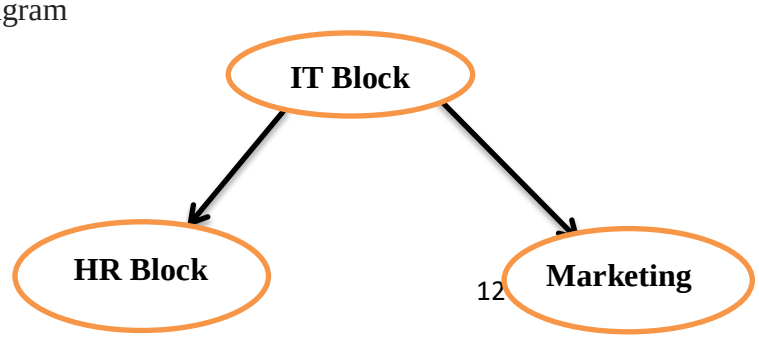
iv. Which type of network out of the following is formed by connecting the computers of these three blocks?
   a. LAN
   b. MAN
   c. WAN

v. Which of the following device will be suggested by you to connect each computer in each of the buildings:
   a. Switch
   b. Modem
   c. Gateway

Ans.

i. IT block because it has maximum number of computers.

ii. Block Diagram



iii. Satellite link
iv. LAN
v. Switch

39. Consider the following tables GAMES and PLAYER and answer the question:

Table : Games

Gcode	GameName	Type	Number	Prize Money	Schedule Date
101	Carom Board	Indoor	2	5000	23-Jan-2004
102	Badminton	Outdoor	2	12000	12-Dec-2003
103	Table Tennis	Indoor	4	8000	14-Feb-2004
104	Chess	Indoor	2	9000	01-Jan-2004
108	Lawn Tennis	Outdoor	4	25000	19-Mar-2004

Table : Player

Pcode	Name	Gcode
1	Nabi Ahmad	101
2	Ravi Sahai	108
3	Jatin	101
4	Nazneen	103

Write SQL commands for the following statements: [5]

1. To display the name of all GAMES with their GCode's.
2. To display details of those GAMES which are having PrizeMoney more than 7000.
3. To display the content of the GAMES table in ascending order of Schedule Date.
4. To display all indoor games names from the GAMES table.
5. To display sum of PrizeMoney for each type of GAMES.

Ans.

1. SELECT GameName, GCode FROM GAMES;
2. SELECT * FROM Games WHERE PrizeMoney >7000;
3. SELECT * FROM Games ORDER BY ScheduleDate;
4. SELECT GameName FROM Games WHERE Type= 'Indoor';
5. SELECT SUM(Prizemoney) FROM Games GROUPBY Type;

40. A binary file "CAR.DAT" has structure (Code, CarName, Sale). Write a function countrec() in Python that would read contents of the file "CAR.DAT" and display the details of those cars whose Sale is above 1000. Also display number of cars which have 0 sales [5]

Ans.

```
import pickle
def countrec():

    infile = open('car1.dat', 'rb')
```

```
count = 0
while True:
    try:
        record = pickle.load(infile)
        if(record[2] >= 1000) :
            print (record)
        if (record[2] == 0) :
            count += 1
    except EOFError:
        break
print ("Zero Sales: ",count)
#close the file
infile.close()
```