Kendriya Vidyalaya Sangathan, Tinsukia Region
First Pre-Board Examination 2020-21
Computer Science (083) (Theory)
Class: XII

Maximum Marks: 70   **Time Allowed: 3 hours**

Marking Scheme

Question No.	Part-A	Marks allocated

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.	Find the valid identifier from the following a) `False` b) `Ist&2nd` c) `2ndName` d) `My_Name` **d) My_Name**	(1)
2.	Given the lists `L=[1,30,67,86,23,15,37,131,9232]`, write the output of `print(L[3:7])` **[86, 23, 15, 37]**	(1)
3.	Name all the file access modes in python. **" r ", for reading.** **" w ", for writing.** **" a ", for appending.** **" r+ ", for both reading and writing.**	(1)
4.	Identify the invalid logical operator in Python from the following. a) `and` b) `or` c) `not` d) `Boolean` **d) Boolean**	(1)
5.	Suppose a tuple T is declared as `T = (10, 12, 43, 39)`, which of the following is Incorrect? a) `print(T[1])` b) `print(max(T))` c) `print(len(T))` d) None of the above **d) None of the above**	(1)
6.	Write a statement in Python to declare a dictionary whose keys are 5, 8, 10 and values are May, August and October respectively. **Dict= {5:"May", 8: "August", 10: "October"}**	(1)
7.	A list is declared as `Lst = [1,2,3,4,5,6,8]` What will be the value of `sum(Lst)`? **29**	(1)

8. Name the built-in function / method that is used to return the length of the object. (1)

   len()

9. Name the protocol that is used to transfer files. (1)

   FTP

10. Your friend's mother receives an e-mail to access the additional services of bank at zero cost from some agency asking her to fill her bank details like credit card number and PIN in the form attached to the mail. (1)
    Identify the type of cybercrime in this situation.

    Phishing

11. In SQL, name the clause that is used to display the unique values of an attribute of a table. (1)

    DISTINCT

12. In SQL, what is the use of <> operator? (1)

    Not equal to

13. Write any two aggregate function used in SQL. (1)

    Any two of aggregate functions (1/2 marks for each correct answer)

14. Which of the following is/ are DML command(s)? (1)
    a) SELECT   b) ALTER   c) DROP   d) UPDATE

    SELECT & UPDATE (1/2 marks for each correct answer)

15. Name the fastest available transmission media. (1)

    OFC (Optical Fiber Cable)

16. Identify the valid declaration of L: (1)
    ```
    L = ('Mon', '23', 'hello', '60.5')
    ```
    a. dictionary   b. string   c. tuple   d. list

    c. tuple

17. If the following code is executed, what will be the output of the following code? (1)
    ```
    name="Computer_Science_with_Python"
    print(name[-25:10])
    ```

    puter_S

18. In SQL, write the query to display the list databases. (1)
    SHOW DATABASES;

19. Write the expanded form of LAN & MAN. (1)
    Local Area Network
    Metropolitan Area Network (1/2 marks for each correct answer)

20. Which of the following types of table constraints will not prevent NULL entries in a table? (1)
    a) Unique
    b) Distinct
    c) Primary Key
    d) NOT NULL

    UNIQUE & DISTINCT (1/2 marks for each correct answer)

21. Rearrange the following transmission media in increasing order of data transfer rates. (1)

UTP CAT - 5, UTP CAT – 6, IR, Bluetooth, OFC

IR, Bluetooth, UTP CAT - 5, UTP CAT – 6, OFC

Section-II

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

22.   A local library OurLib is considering to maintain their inventory using SQL to store the data. As a database administer, Nishita has decided that :

- Name of the database - OurLib
- Name of the table - BOOKS

- The attributes of table **BOOKS** are as follows:
    Book_ID - numeric
    Title – character of size 30
    Author - character of size 20
    Publisher – character of size 30
    Price – Float

Book_ID	Title	Author	Publisher	Price
1001	The Leader who had no title	Robin Sharma	PHI	500
1002	You Can Win	Shiv Kheda	TMH	253
1003	Rich Dad Poor Dad	Robert T. Kiyosaki	PHI	564
1004	Success Through a Positive Mental Attitude	Napoleon Hill	Penguin	522
1005	Fear Not, Dream Big, & Execute	Jeff Meyer	MCH	845
1006	Leadership: The Art of Inspiring People to Be Their Best	Craig B. Whelden	Penguin	542

a. Identify the attribute best suitable to be declared as a primary key.   (1)
   BOOK_ID
b. Write the degree and cardinality of the table **BOOKS**.   (1)
   Degree: 5, Cardinality: 6
c. Insert the following data into the attributes **BOOKS**.   (1)
   Book_ID= 2010, Title= "A Book of Comp. Sc.", Author="Praveen Sharma" and Price = 625
INSERT INTO BOOKS
values(2010, "A Book of Comp. Sc.", "Praveen   Sharma", 625);
d. Nishita want to remove the entire data of table BOOKS from the   (1)
   database OurLib.
    Which command will he use from the following:
        i.   DELETE FROM BOOKS;
        ii.   DROP TABLE BOOKS;
        iii. DROP DATABASE BOOKS;

iv.   DELETE TABLE books FROM OurLib;

i. DELETE FROM BOOKS;

e. Now Nishita wants to display the structure of the table BOOKS, i.e.   (1)
Title of the attributes and their respective data types that she
has used in the table. Write the query to display the same.

DESC BOOKS; OR
DESCRIBE BOOKS; (1 mark for any suitable output)

23.   Sanjay Dalmia of class 12 is writing a program to create a CSV file
"contacts.csv" which will contain Name and Mobile Number for some
entries. He has written the following code. As a programmer, help him to
successfully execute the given task.

```
import _____                              # Line 1


def addCsvFile(Name,Mobile): # to write / add data into the CSV file

   f=open('contacts.csv','_____')                  # Line 2
   newFileWriter = csv.writer(f)
   newFileWriter.writerow([Name,Mobile])
   f.close()



#csv file reading code
def readCsvFile():                    # to read data from CSV file

  with open('contacts.csv','r') as newFile:

       newFileReader = csv._____(newFile)   # Line 3

       for row in newFileReader:

           print (row[0],row[1])
  newFile._____                          # Line 4

addCsvFile("Arjun","8548587526")

addCsvFile("Arunima","6585425855")

addCsvFile("Frieda","8752556320")

readCsvFile()                                      #Line 5
```

a) Name the module he should import in Line 1.   (1)
import csv
b) In which mode, Sanjay should open the file to add data into the file   (1)
a or a+
c) Fill in the blank in Line 3 to read the data from a csv file.   (1)
reader
d) Fill in the blank in Line 4 to close the file.   (1)
close()
a) Write the output he will obtain while executing Line 5.   (1)
Arjun 8548587526
Arunima 6585425855
Frieda 8752556320

Part – B

Section-I

24. Evaluate the following expressions: (2)
    a) `8/4+4**2//5%2-8`
       -5.0
    b) `10 >= 5 and 7 < 12 or not 13 == 3`
       True

25. Differentiate between Switch and a Hub. (2)
    1 mark for each correct difference.

    OR

    Differentiate between Web server and web browser. Write any two
    popular web browsers.

    1 mark for Differentiate between Web server and web browser
    ½ Mark for each web browser name

26. Expand the following terms: (2)

    a. URL   b. WI-Fi   c. LAN   d. GPRS
    ½ Mark for each correct expansion
    Uniform Resource Locater.
    Wireless – Fidelity
    Local Area Network
    General Packet Radio Service

27. Differentiate between *break* and *continue* statements with a suitable (2)
    example.
    1 mark for correct example and explanation.

    OR

    What is the difference between local and a global variable? Explain with the
    help of a suitable example.
    1 mark for difference and 1 mark for correct example.

28. Rewrite the following code in Python after removing all syntax error(s). (2)
    Underline each correction done in the code.

    ```
    a = 200
    b = 33
    if b > a:
        print("b is greater than a")
    elif  a == b:
         print("a and b are equal")
    else:
         print("a is greater than b")
    ```
    ½ mark for each error identification

29. What possible outputs(s) are expected to be displayed on screen at the   2)

    time of execution of the program from the following code? Also specify

    the maximum values that can be assigned to each of the variables first,

    second and third.

    ```
    from random import randint
    LST=[5,10,15,20,25,30,35,40,45,50,60,70]
    first = randint(3,8)
    second = randint(4,9)
    third = randint(6,11)
    print(first,"#",second,"#",third,"#")
    ```

    (i) 20#25#25#   (ii) 30#40#70#   (iii) 15#60#70#   (iv) 35#40#60#

30. What do you understand by Candidate Keys in a table? Give a suitable example of Candidate Keys from a table containing some meaningful data. (2)
½ mark for candidate key explanation / definition
1½ mark for example

31. Differentiate between *fetchone()* and *fetchall()* methods with suitable examples for each. (2)
1 mark for each correct example

32. Write the full forms of DDL and DML. Write any two commands of DML in SQL. (2)
½ mark for each correct expansion
Data Definition Language, Data Manipulation Language
½ mark for each correct example

33. Find and write the output of the following Python code: (2)

```
def change (P,Q=30):
    P=P+Q
    Q=Q-P
    print(P,"#",Q)
    return(P)
R=150
S=100
R=change(R,S)
print(R,"#",S)
S=change(S)
```

250 # -150
250 # 100
130 # -100

Section- II

34. Take the two lists, and write a program that returns a list only the elements that are common between both the lists (without duplicates) in ascending order. Make sure your program works on two lists of different sizes. (3)

   e.g.
   L1= [1,1,2,3,5,8,13,21,34,55,89]
   L2= [20,1,2,3,4,5,6,7,8,9,10,11,12,13]
The output should be:
[1,2,3,4,5,6,7,8,9,10,11,12,13,20,21,34,55,89]
3 marks for correct program, one possible code is below
L1= [1,1,2,3,5,8,13,21,34,55,89]
L2= [20,1,2,3,4,5,6,7,8,9,10,11,12,13]
L3=[]
temp_L1=list(set(L1))
temp_L2=list(set(L2))
for i in temp_L1:
** for j in range(len(temp_L2)):**
**   if i == temp_L2[j]:**
**   L3.append(i)**
#L3=temp_L1+temp_L2

```
L3=list(set(L3))
L3.sort()
print(L3)
```

35.   Write a function in Python that counts the number of "The" or "This" words   (3)

present in a text file "MY_TEXT_FILE.TXT".

Note: (The comparison should be case insensitive)

```
num_words = 0
 with open('MY_TEXT_FILE.TXT', 'r') as f:
    for line in f:
       words = line.split()
       for word in words:
          if word.upper()== 'THE' or word.upper()== 'THIS' :
             num_words+=1
 print(num_words)
```

OR

Write a function VowelCount() in Python, which should read each character

of a text file MY_TEXT_FILE.TXT, should count and display the occurrence

of alphabets vowels.

Example:
If the file content is as

      follows: Updated

      information

      As simplified by official websites.

The VowelCount() function should display the output as:

      A or a:4
      E or e :4
      I or I :8
      O or o : 0
      U or u: 1

```
def VowelCount():
     count_a=count_e=count_i=count_o=count_u=0
     with open('MY_TEXT_FILE.TXT', 'r') as f:
        for line in f:
           for letter in line:
              if letter.upper()=='A':
                 count_a+=1
              elif letter.upper()=='E':
                 count_e+=1
              elif letter.upper()=='I':
                 count_i+=1
              elif letter.upper()=='O':
                 count_o+=1
              elif letter.upper()=='U':
                 count_u+=1

     print("A or a:", count_a)
     print("E or e:", count_e)
```

print("I or i:", count_i)
print("O or o :", count_o)
print("U or u:", count_u)

or any other correct logic

36.   Write the outputs of the SQL queries (i) to (iii) based on the relations   (3)
Teacher and Posting given below:

Table: Stationary

S_ID	StationaryName	Company	Price
DP01	Dot Pen	ABC	10
PL02	Pencil	XYZ	6
ER05	Eraser	XYZ	7
PL01	Pencil	CAM	5
GP02	Gel Pen	ABC	15

Table: Consumer

C_ID	ConsumerName	Address	S_ID
1	Good Learner	Delhi	PL01
6	Write Well	Mumbai	GP02
12	Topper	Delhi	DP01
15	Write & Draw	Delhi	PL02

    i.   SELECT count(DISTINCT Address) FROM Consumer;
        2

    ii.   SELECT Company, MAX(Price), MIN(Price), COUNT(*) from
        Stationary GROUP BY Company;

Company	Max(Price)	Min(Price)	Count(*)
ABC	15	10	2
XYZ	7	6	2
CAM	5	5	1

    iii.   SELECT Consumer.ConsumerName,
        Stationary.StationaryName, Stationary.Price
        FROM Stationary, Consumer
        WHERE Consumer.S_ID = Stationary.S_ID;

Good Learner	Pencil	5
Write Well	Gel Pen	15
Topper	Dot Pen	10
Write & Draw	Pencil	6

37. Write a function in Python PUSH(Lst), where Lst is a list of numbers. From this list push all numbers not divisible by 6 into a stack implemented by using a list. Display the stack if it has at least one element, otherwise display appropriate error message. (3)
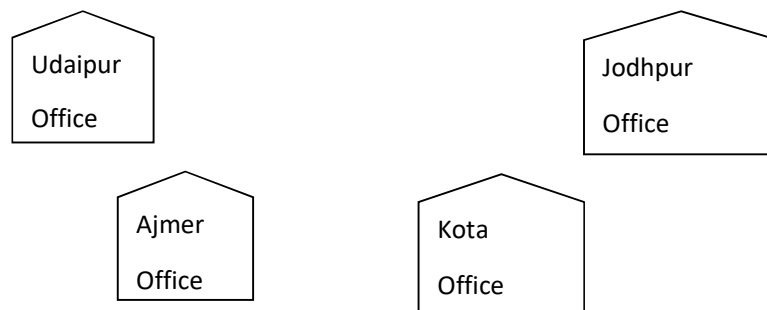
OR

Write a function in Python POP(Lst), where Lst is a stack implemented by a list of numbers. The function returns the value deleted from the stack.

3 marks for any correct logic

Section-III

38. Laxmi Marketing Ltd. has four branches in its campus named Udaipur, Kota, Jodhpur and Ajmer. Laxmi Marketing Ltd. wants to establish the networking between all the four offices. (5)

Approximate distances between these offices as per network survey team are as follows:

Place From	Place To	Distance
Udaipur	Jodhpur	30 m
Jodhpur	Kota	40 m
Kota	Ajmer	25 m
Udaipur	Ajmer	150 m
Jodhpur	Ajmer	105 m
Udaipur	Kota	60 m

In continuation of the above, the company experts have planned to install the following number of computers in each of their offices:

Udaipur	40
Jodhpur	80
Kota	200
Ajmer	60

i. Suggest the most suitable place (i.e., Block/Center) to install the server of this organization with a suitable reason.

KOTA, Maximum Computers

ii. Suggest an ideal layout for connecting these blocks/centers for a wired connectivity.

Any suitable layout

iii. Which device will you suggest to be placed/installed in each of these offices to efficiently connect all the computers within these offices?

Switch

iv. Suggest the placement of a Repeater in the network with justification.

Udaipur to Ajmer Block if direct connection is there

v. The organization is planning to connect its new office in Delhi, which is more than 1250 km current location. Which type of network out of LAN, MAN, or WAN will be formed? Justify your answer.

WAN: spread over more than one city

39. (5)

Consider the tables given below.

Table : STOCK

Itcode	Itname	Dcode	Qty	UnitPrc	StkDate
444	Drawing Copy	101	10	21	31-June-2009
445	Sharpener Camlin	102	25	13	21-Apr-2010
450	Eraser Natraj	101	40	6	11-Dec-2010
452	Gel Pen Montex	103	80	10	03-Jan-2010
457	Geometry Box	101	65	65	15-Nov-2009
467	Parker Premium	102	40	109	27-Oct-2009
469	Office File	103	27	34	13-Sep-2010

Table : DEALERS

Dcode	Dname	Location
101	Vikash Stationers	Lanka Varanasi
102	Bharat Drawing Emporium	Luxa Varanasi
103	Banaras Books Corporation	Bansphatak Varanasi

(i) To display all the information about items containing the word "pen" in the field Itname in the table **STOCK**

SELECT * FROM STOCK WHERE Itname LIKE "%pen%";

(ii) List all the itname sold by Vikash Stationers

SELECT DISTINCT(Itname) FROM STOCK, DEALERS WHERE

STOCK.Dcode= DEALERS.Dcode;

(iii) List all the Itname and StkDate in ascending order of StkDate

SELECT Itname, StkDate FROM STOCK ORDER BY StkDate;

(iv) List all the Itname, Qty and Dname for all the items for the items quantity more than 40.

SELECT Itname, Qty, Dname FROM STOCK, DEALERS WHERE STOCK.Dcode= DEALERS.Dcode;

(v) List all the details of the items for which UnitPrc is more than 10 and <= 50

SELECT * FROM STOCK WHERE UnitPrc BETWEEN 10 AND 50;

40. A binary file "Employee.dat" has structure [Emp_ID, Emp_Name, Salary, Mobile]. (5)

i. Write a user defined function *CreateFile()* to input data for a record and add to Employee.dat .

2½ marks for correct coding.

ii. Write a function *TotalSalary()* in Python which return the sum of salary of all the employees stored in the binary file "Employee.dat"

2½ marks for correct coding.

OR

A binary file "Account.dat" has structure (Acct_Number, Acct_Type, AcctHolderName, Balance).

i. Write a user defined function *CreateFile()* to input data for a record and add to Account.dat .

2 marks for correct coding.

ii. Write a function C*ountBalanceAbove(**BAL**)* in Python that would read contents of the file "Account.dat" and display the details of those accounts in which Balance is more than BAL. Also display number of such accounts.

2 marks for correct coding of displaying the account details & 1 mark for counting of such accounts.