KENDRIYA VIDYALAYA SANGATHAN, LUCKNOW REGION

Second Pre-Board Examination

Class XII : Computer Science (083)

Session: 2020-21

Time: 3 hrs   **M.M.: 70**

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

<table>
<tr><td colspan="3" align="center">

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.

</td></tr>
<tr><td>QN</td><td>Questions Description</td><td>Marks Allotted</td></tr>
<tr><td>1.</td><td>Which of the following is not a valid identifier name in Python?

a) 5Total   b) _Radius   c) pie   d)While</td><td>1</td></tr>
<tr><td>2.</td><td>Give Output:

colors=["violet", "indigo", "blue", "green", "yellow", "orange", "red"]

del colors[4]

colors.remove("blue")

colors.pop(3)

print(colors)</td><td>1</td></tr>
<tr><td>3.</td><td>Write a statement in Python to open a text file "ABC.TXT" in read and write both mode.</td><td>1</td></tr>
<tr><td>4.</td><td>Find the operator which cannot be used with a string in Python from the following:
(a) +   (b) in   (c) *   (d) //</td><td>1</td></tr>
<tr><td>5.</td><td>Which of the following statements will create a tuple?
(a) Tp1 = ("a","b")
(b) Tp1= (3) * 3
(c) Tp1= ("a")+("b")
(d) All of the above</td><td>1</td></tr>
</table>

6.	Write a statement in Python to declare a dictionary of odd numbers between 1 and 10 where the keys are the decimal number and the values are corresponding number in words.	1
7.	Predict the output of the following code fragment. ``` l=[10,20,30,40,50,60] l=l[1:10]+l[-10:3] print(l) ```	1
8.	Which statement is correct for dictionary? (i) A dictionary is a ordered set of key:value pair (ii) each of the keys within a dictionary must be unique (iii) values in the dictionary are immutable (iv) All of the above	1
9.	Evaluate the following expressions. 2+3/3**1**2*5+10	1
10.	Name the python library modules which need to be imported to invoke the following functions: (i)uniform() (ii) fabs()	1
11.	Website incharge SUDEEP of a school is handling downloading/uploading various files on school website. Write the name of the protocol which is being used in the above activity.	1
12.	In SQL, name the clause that is used to display the unique values of an attribute of a table.	1
13.	In SQL, write the name of the aggregate function which is used to calculate & display the average of numeric values in an attribute of a relation.	1
14.	Which of the following functions is used to find the largest value from the given data in MySQL? a) MAX ( ) b) MAXIMUM ( ) c) LARGEST ( ) d) BIG ( )	1
15.	Name the clause used in query to place the condition on groups in MySQL?	1
16.	What is the purpose of following SQL command: SHOW DATABASES;	1
17.	Give the full form of the following: (a) URL (b) TDMA	1
18.	Name the fastest available guided transmission media.	1
19.	Differentiate between Bps & bps.	1
20.	Which is not a network topology? a. BUS b. STAR c. LAN d. RING	1
21	In SQL, what is the use of <> operator?	1

PART-A
Section-II
Both the case study-based questions are compulsory. Attempt any 4 out of the 5 subparts from each question. Each question carries 1 mark.

22.	A local library LucknowLib is considering to maintain their inventory using SQL to store the data. As a database administer, Parul has decided that : • Name of the database - LucknowLib • 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
(b)	Write the degree and cardinality of the table **BOOKS**	1
(c)	Parul wants to display the Title and author of those whose books are published by Penguin publisher.	1
(d)	Parul wants to arrange the table in descending order of Price. Write query to display the same.	1
(e)	Now Parul wants to display the structure of the table BOOKS, i.e. Title of the attributes and their respective data types that she has used in the table. Write the query to display the same	1
23.	Abhinav is making a software on "Countries & their Capitals" in which various records are to be stored/retrieved in CAPITAL.CSV data file. It consists somerecords(Country & Capital). He has written the following code in python. As a programmer, you haveto help him to successfully execute the program.	

```python
import _____  # Statement-1
def AddNewRec(Country,Capital):  # Fn. to add a new record in CSV file
    f=open("CAPITAL.CSV",___) # Statement-2
    fwriter=csv.writer(f)
    fwriter._____([Country,Capital])# Statement-3
    f.close()
def ShowRec():  # Fn. to display all records from CSV file
    with open("CAPITAL.CSV","r",newline="\n") as NF:
        NewReader=csv._____(NF) # Statement-4
        for rec in NewReader:
            print(rec[0],"=>",rec[1])
AddNewRec("INDIA","NEW DELHI")
AddNewRec("CHINA","BEIJING")
ShowRec() # Statement-5
```

(a) Name the module to be imported in Statement-1.	1
(b)Write the file mode to be passed to add new record in Statement-2.	1
(c) Fill in the blank in Statement-3 to write records in the file.	1
(d)Fill in the blank in Statement-4 to read the data from a csv file.	1
(e) Write the output which will come after executing Statement-5.	1

PART-B
Section-I
Short answer questions of 2 marks each in which two question have internal options.

24.	Find and write the output of the following python code :	2

```
def Changer(P,Q=10):
    P=P//Q
    Q=P%Q
    print(P,"#",Q)
    return P
A=200
B=20
A=Changer(A,B)
print(A,"$",B)
B=Changer(B)
print(A,"$",B)
```

25.	What is the difference between hub and switch? Which is preferable in a large network of computers and why? Or Mohan has purchased a new Smart TV and wants to cast a video from his mobile to his new Smart TV. Identify the type of network he is using and explain it.	2

26.	What are the full form of following terms? a. HTML b. MAC c. SIM d. GSM	2

27.	What is the meaning of return value of a function? Give an example to illustrate its meaning. <center>OR</center> Differentiate between a positional and default arguments with the help of an example.	2

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

```
250 = Number
WHILE Number<=1000:
    if Number=>750
        print (Number)
        Number=Number+100
    else
        print( Number*2)
Number=Number+50
```

29.	What possible outputs(s) are expected to be displayed on screen at the time of execution of the program from the following code? Also specify the maximum values that can be assigned to each of the variables BEG and END.
	
	``python
	import random
	
	HEIGHTS=[10,20,30,40,50]
	BEG=random.randint(0,2)
	END=random.randint(2,4)
	
	for X in range(BEG,END):
	    print(HEIGHTS[X],end="@")
	``
	
	(a) 30@
	(b) 10@20@30@40@50@
	(c) 20@30
	(d) 40@30@
		2

30.	What is Constraint in SQL? Give example of any two constraints.	2

31.	Consider the following Python code is written to access the record of CODE passed to function: Complete the missing statements:
	  def Search(eno):
	        #Assume basic setup import, connection and cursor is created
	        query="select * from emp where empno=_____".format(eno)
	        mycursor.execute(query)
	        results = mycursor._____
	        print(results)
		2

32.	Differentiate between WHERE and HAVING clause.	2

33.	Find and write the output of the following Python code:
	
	``python
	Text1="AISSCE 2021"
	Text2=""
	I=0
	while I<len(Text1):
	    if Text1[I]>="0" and Text1[I]<="9":
	        Val=int(Text1[I])
	        Val=Val+1
	        Text2=Text2+str(Val)
	    elif Text1[I]>="A" and Text1[I]<="Z":
	        Text2=Text2+(Text1[I+1])
	    else:
	        Text2=Text2+"*"
	    I=I+1
	print(Text2)
	``
		2

PART-B
Section-II
Short answer questions of 3 marks each in which two question have internal options.

34.	Write a function which takes two lists as arguments and returns a list which contains only the elements that are common between both the lists in ascending order. Make sure your program works on two lists of different sizes without duplicates. e.g. L1= [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: [1,2,3,5,8,13]	3

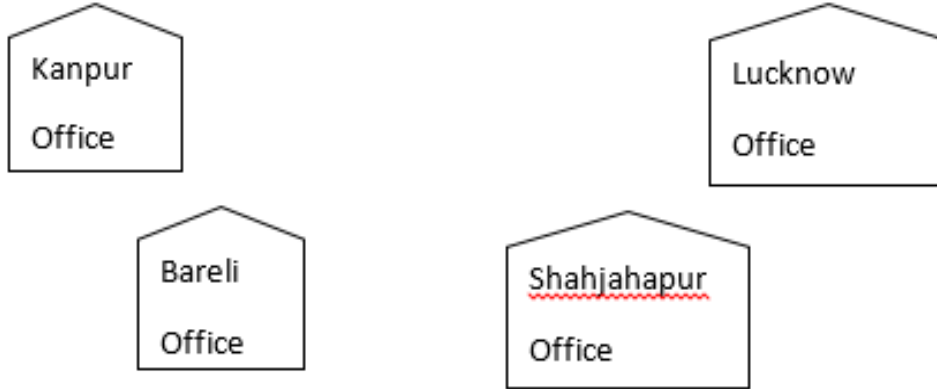| 35.	Write a method/function COUNTLINES_ET() in python to read lines from a text file REPORT.TXT, and COUNT those lines which are starting either with 'E' and starting with 'T' respectively. And display the Total count separately. For example: if REPORT.TXT consists of "ENTRY LEVEL OF PROGRAMMING CAN BE LEARNED FROM PYTHON. ALSO, IT IS VERY FLEXIBLE LANGUGAE. THIS WILL BE USEFUL FOR VARIETY OF USERS." Then, Output will be: No. of Lines with E: 1 No. of Lines with T: 1 OR Write a method/function BIGWORDS() in Python to read contents from a text file CODE.TXT, to count and display the occurrence of those words, which are having 5 or more alphabets.	3
36.	Write the outputs of the SQL queries (i) to (iii) based on the relations Stationary and Consumer 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	 1) SELECT count(DISTINCT Address) FROM Consumer ; 2) SELECT Company, MAX(Price), MIN(Price), COUNT(*) from Stationary GROUP BY Company ; 3) SELECT Consumer.ConsumerName, Stationary.StationaryName, Stationary.Price FROM Stationary, Consumer WHERE Consumer.S_ID = Stationary.S_ID;	3
37.	Write a program to perform push operations on a Stack containing Student details as given in the following definition of student dictionary: rno integer name String age integer def stk_push(stk): # Write the code to push student details using stack. OR Write a function in Python PUSH (Lst,stack), where Lst is a list of numbers. From this list push all prime numbers into a stack implemented by using a list. Display the stack if it has at least one element, otherwise display appropriate error message.	3

38.	Mahadev Marketing Ltd. has four branches in its campus named Kanpur, Lucknow, Bareli and Shahjahanpur. Mahadev 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:

Kanpur Office

Lucknow Office

Bareli Office

Shahjahapur Office

Place From	Place To	Distance
Kanpur	Lucknow	30 m
Lucknow	Shahjahanpur	40 m
Shahjahanpur	Bareli	25 m
Kanpur	Bareli	150 m
Lucknow	Bareli	105 m
Kanpur	Shahjahanpur	60 m

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

Kanpur	40
Lucknow	80
Shahjahanpur	200
Bareli	60

(i)	Suggest the most suitable place (i.e., Block / Centre) to install the server of this organization with a suitable reason.	1
(ii)	Suggest an ideal layout for connecting these blocks / centres for a wired connectivity.	1
(iii)	Which device will you suggest to be placed/installed in each of these offices to efficiently connect all the computers within these offices?	1
(iv)	Suggest the placement of a Repeater in the network with justification.	1
(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.	1
39.	Write SQL queries for (i) to (v), which are based on the table: **SCHOOL and ADMIN**	5

TABLE: SCHOOL

CODE	TEACHERNAME	SUBJECT	DOJ	PERIODS	EXPERIENCE
1001	RAVI SHANKAR	ENGLISH	12/03/2000	24	10
1009	PRIYA RAI	PHYSICS	03/09/1998	26	12
1203	LISA ANAND	ENGLISH	09/04/2000	27	5
1045	YASHRAJ	MATHS	24/08/2000	24	15
1123	GANAN	PHYSICS	16/07/1999	28	3
1167	HARISH B	CHEMISTRY	19/10/1999	27	5
1215	UMESH	PHYSICS	11/05/1998	22	16

TABLE: ADMIN

CODE	GENDER	DESIGNATION
1001	MALE	VICE PRINCIPAL
1009	FEMALE	COORDINATOR
1203	FEMALE	COORDINATOR
1045	MALE	HOD
1123	MALE	SENIOR TEACHER
1167	MALE	SENIOR TEACHER
1215	MALE	HOD

(i)	To display periods of the teachers of English subject.	1
(ii)	To display TEACHERNAME, CODE and DESIGNATION from tables SCHOOL and ADMIN whose gender is male.	1
(iii)	To Display number of teachers in each subject.	1
(iv)	To display details of all teachers who have joined the school after 01/01/1999 in descending order of experience.	1
(v)	Display all the entries of those teachers whose experience is less than 10 years in SCHOOL table.	1
40.	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 . (ii) Write a function CountBalanceAbove(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. **OR** Consider the following CSV file (emp.csv): Sl,name,salary 1,Peter,3500 2,Scott,4000 3,Harry,5000 4,Michael,2500 5,Sam,4200 Write Python function DISPEMP( ) to read the content of file emp.csv and display only those records where salary is 4000 or above.	5