

KENDRIYA VIDYALAYA SANGATHAN, LUCKNOW REGION

II Pre-Board Examination
Class XII : Computer Science (083)
Session: 2020-21

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 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 questions 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

Question Number	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.	Marks Allotted
1	Which of the followings are valid variable names in Python? (i) Emp-Code (ii) FOR (iii) Emp_Code (iv) 2020SalesDetail	1
2	Given the List L = [5,7,8,11,45,80] , Write the output of <code>print(L[::-1])</code>	1
3	Which of the following statement is True in context to “a” mode in CSV File Handling operations in Python? (i) It allows to write data only in existing file (ii) It allows to write data in file, if file not exists it will create new file if exists it will overwrite the previous content. (iii) It allows to write data in file, if file not exists it will create new file, if exists it will add new data at the end of previous content. (iv) It allows performing both read and writing operation on file.	1
4	What will be result of following arithmetic expression? <code>50 + 20 % 50</code> (i) 50 (ii) 70 (iii) 100 (iv) 80	1
5	Suppose a tuple T is declared as <code>T = (20,21,45,67)</code> , which of the following is valid to add new item 100 in tuple? (i) <code>T = T + 100</code> (ii) <code>T = T + (100)</code> (iii) <code>T = T + (100,)</code> (iv) <code>T.append(100)</code>	1

6	Suppose a Dictionary D is declared as D = {'Roll':1,'name':'Jatin','Per':90} Write print() statement to print all the Keys of above dictionary	1
7	A Tuple T is declared as T = (11,22,33,44,55,66,77,88) What will be the output of print(T[:3]+T[3:]) ?	1
8	Name the Python library module which need to be imported to invoke the following function: (i) floor() (ii) load()	1
9	Name the protocol used for dividing your message into smaller data packets.	1
10	On which date, India IT Act was notified?	1
11	Sujatha, is working as a database developer in SolutionA2Z corporation. She was assigned a task to give the list of those employees who are currently not working on any project. For this she has written the following Query: SELECT * FROM EMPDETAIL WHERE PROJECT_ASSIGNED = NULL; But Query is not producing any output. Re-write the correct query to help Sujatha to perform the required task.	1
12	A following Query was written to search for those students who scored percentage 90 or above and output in ascending order of their name (Based on Table STUDENTS (ROLL, NAME, PERCENTAGE) as: SELECT * FROM STUDENTS ORDER BY NAME WHERE PERCENTAGE>=90; But Query is producing error. What could be the possible reason of error?	1
13	Which of the following is not an aggregate function of MySQL? (i) SUM() (ii) AVERAGE() (iii) AVG() (iv) COUNT()	1
14	Aggregate Function MAX() and MIN() can be applied on NUMBERS, TEXT and DATE data type. (TRUE/FALSE)	1
15	Give one example of each (i) Guided Media (ii) Un-guided Media	1
16	Identify the correct dictionary declaration (Qtr1), if the keys of dictionary are "Jan", "Feb", "Mar" and the values are 31,29,31. (i) Qtr1 = ["Jan"]=31,"Feb"]=29,"Mar"]=31] (ii) Qtr1 = {"Jan":31,"Feb":29,"Mar":31} (iii) Qtr1 = {"Jan"}=31,"Feb"}=29,"Mar"}=31} (iv) Qtr1 = {Jan:31,Feb:29,Mar:31}	1
17	If the following code is executed, what will be the output of the following code? name="ComputerScienceExam " print(name[:10:2])	1
18	Identify the correct Query to display all the tables in current database. a. SHOW DATABASES; b. SELECT * FROM DATABASES; c. SELECT * FROM TABLES; d. SHOW TABLES;	1
19	Write the expanded form of IPR.	1
20	If any column (X) of a table (T) depends upon the primary key column(Y) of another table (T2) then this column (X) will be known as? a. Primary Key b. Unique Key c. Alternate Key d. Foreign Key	1
21	Why Switch is known as Intelligent Hub?	1

SECTION – II

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

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Venkatesh, a database developer created a Table RESULT to store the ROLL, NAME, STIPEND, SUBJECT, AVERAGE and DIVISION of Students as:

<u>Column Name</u>	<u>Data Type</u>
ROLL	int
NAME	varchar(20)
STIPEND	int
SUBJECT	varchar(20)
AVERAGE	int
DIVISION	varchar(20)

RESULT

ROLL	NAME	STIPEND	SUBJECT	AVERAGE	DIVISION
1	SHOBHIT	400	ENGLISH	44	THIRD
2	ANMOL	650	MATHEMATICS	76	FIRST
3	VAIBHAV	350	ACCOUNTS	71	FIRST
4	SHAKEEL	250	IP	58	SECOND
5	ANANYA	450	CS	92	FIRST
6	UPENDRA	650	PHYSICS	35	THIRD
7	SUJOY	200	GEOGRAPHY	49	SECOND

- (i) Based on the above table definition and data, Identify the attribute best suitable for the Primary Key.
- (ii) Write down the Degree and Cardinality of Table RESULT
- (iii) Write down query to display name of those who secured FIRST division
- (iv) Now Venkatesh, wants to display RESULT in ascending order of AVERAGE. Write the query for same.
- (v) Venkatesh wants to display the structure of the table RESULT, 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.

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23

Chinmayee is working as a CSV programmer; She has written the following code to add Dish Name and Price in CSV file along with their heading and read back the data from the file. But she is missing with some statements in her code, As a programmer, help her to achieve the task:

```
import _____ #Line 1
def addDish(Dishes):
    heading=["Dish Name","Dish Price"]
    with open("dishes.csv","w") as mycsv:
        mywriter = csv.writer(mycsv,lineterminator='\n')
        mywriter._____ (heading) #Line 2
        mywriter._____ (Dishes) #Line 3
def showDish():
    with open("dishes.csv","r") as mycsv:
        myreader = csv.reader(mycsv)
        t=0
        for row in _____: #Line 4
            if t>0:
                print(row[0],',',row[1])
            t+=1
        print("Total Dishes=",t-1)
addDish([["Dosa",120],["Idli",80],["Samosa",50]])
showDish() #Line 5
```

4

	<p>(i) Name the module She should import at Line 1</p> <p>(ii) Fill in the blanks in Line 2 to add headings in CSV file</p> <p>(iii) Fill in the blanks in Line 3 to complete the write operation</p> <p>(iv) Fill in the blank in Line 4 to read all data of CSV file</p> <p>(v) What will be the output produced after executing Line 5</p>					
	PART - B SECTION - I					
24	<p>Evaluate the following expressions:</p> <p>a) $20 // (15 \% 8) * 2 ** 2$</p> <p>b) $\text{not}(10 > 20)$ or $(8 > 8)$ and $(11 == 11)$</p>	2				
25	<p>Differentiate between Hackers and Crackers.</p> <p>OR</p> <p>Differentiate between HTML and XML.</p>	2				
26	<p>Expand the following terms:</p> <p>a. GSM b. ISP c. FTP d. URL</p>	2				
27	<p>What is default parameter in function? Give suitable example to illustrate the use of default argument.</p> <p>OR</p> <p>Differentiate between local and global variable with suitable example.</p>	2				
28	<p>Rewrite the following code in Python after removing all syntax error(s). Underline each correction done in the code.</p> <pre> a=5 work=true b="hello" a =*100 FOR i in range(10): if i%7=0: continue </pre>	2				
29	<p>What possible output is expected to be displayed on screen out of (i) to (iv) at the time of execution of the program from the following code? Also specify the minimum & maximum values that can be assigned to variables NUM.</p> <pre> import random LANGUAGES=['PYTHON','JAVA','C++','LISP'] NUM = random.randint(1,3) SELECTED="" for I in range(NUM,0,-1): SELECTED = SELECTED + LANGUAGES[I] print(SELECTED) </pre> <table border="1" style="width: 100%; margin-top: 10px;"> <tr> <td style="width: 50%; text-align: center;">(i) LISPC++JAVAPYTHON</td> <td style="width: 50%; text-align: center;">(ii) PYTHONJAVAC++</td> </tr> <tr> <td style="width: 50%; text-align: center;">(iii) LISPC++JAVA</td> <td style="width: 50%; text-align: center;">(iv) JAVAC++LISP</td> </tr> </table>	(i) LISPC++JAVAPYTHON	(ii) PYTHONJAVAC++	(iii) LISPC++JAVA	(iv) JAVAC++LISP	2
(i) LISPC++JAVAPYTHON	(ii) PYTHONJAVAC++					
(iii) LISPC++JAVA	(iv) JAVAC++LISP					
30	<p>What do you understand by Candidate Keys? What are the major factors to keep in mind while selecting Primary Key from Candidate Keys?</p>	2				
31	<p>Samantha is a Python programmer working on a project where she needs to connect Python program to MYSQL. Following information are available with Samantha to connect like:</p> <p>Name of Server = localhost, Name of user = root, Password = admin</p> <p>Database = empdb</p> <p>Now, you are supposed to help Samantha to create connection with MySQL using the above information.</p> <pre> import mysql.connector as MySQL cn = _____ # fill the code to establish connection </pre>	2				
32	<p>Explain any two aggregate function of SQL with suitable example.</p>	2				

33	<p>Find and write the output of the following python code:</p> <pre>def EncryptIt(message,char): L = len(message) message2 = "" for i in range(L): if message[i].islower(): message2+=message[i+1] elif message[i].isupper(): message2+=message[i].lower() elif message[i].isdigit(): message2+=char else: message2+=message[i-1] print(message2) EncryptIt("Ex@m2021Online*','\$')</pre>	2
SECTION - II		
34	<p>Write a function in Python ChangeIt() which accepts a List (L) as arguments and divide all those elements by 5 which are divisible by 5 and multiply rest of the element by 7.</p> <p>Sample Input Data of List(L) is: L = [20,36,9,60,25,18,2,30]</p> <p>Content of List(L) after calling function ChangeIt() L = [4,252,63,12,5,126,14,6]</p>	3
35	<p>Write a function DISPCOUNT3() in Python to read the content of text file "NOTES.TXT" and display only those word which has only 3 characters in it. Also display count of it i.e. how many 3 letters words present in file.</p> <p>If the sample content of "NOTES.TXT" is "THEN THE DOG CALLED THE CAT. EVERYONE PULLED AND THE CAT HELD ON TO THE DOG'S TAIL. THE CARROT DID NOT MOVE"</p> <p>Then the output should be: THE DOG THE CAT AND THE CAT THE THE DID NOT Count = 11</p> <p style="text-align: center;">OR</p> <p>Sanjana, has create a text file to store some text in an article. After saving the article as "COMPUTERS.TXT", she realized that she has wrongly type alphabet A in place of alphabet E everyone in the word COMPUTER. Write a function DISPLAYTEXT() in Python that would display corrected version of entire article of the file COMPUTERS.TXT with all occurrence of A in word COMPUTER as an E on screen.</p> <p>If Sanjana has stored the following content in the file COMPUTERS.TXT: I SELL COMPUTAR. I HAVE A COMPUTAR. I NEED A COMPUTAR. I WANT A COMPUTAR. I USE THAT COMPUTAR. MY COMPUTAR CRASHED.</p> <p>The function DISPLAYTEXT() should display the following output: I SELL COMPUTER. I HAVE A COMPUTER. I NEED A COMPUTER. I WANT A COMPUTER. I USE THAT COMPUTER. MY COMPUTER CRASHED.</p>	3
36	Write the output of SQL Queries (i) to (iii) based on SHOP table	3

SHOP

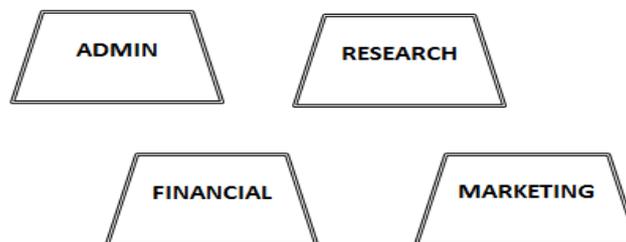
Code	Item	Company	Qty	City	Price
102	Biscuit	Hide & Seek	100	Delhi	10.00
103	Jam	Kissan	110	Kolkata	25.00
101	Coffee	Nestle	200	Kolkata	55.00
106	Sauce	Chings	56	Mumbai	55.00
107	Cake	Britannia	72	Delhi	10.00
104	Maggi	Nestle	150	Mumbai	10.00
105	Chocolate	Cadbury	170	Delhi	25.00

- (i) Select COUNT(DISTINCT CITY) FROM SHOP
(ii) Select Item, Qty*Price As Amount from SHOP where Company='Nestle'
(iii) Select sum(Price),Max(Price) from SHOP where CITY in ('Delhi','Mumbai')

- 37 Write a function in python, Push(Employee,name) and Pop(Employee) to add a new employee name in List of Employee and delete an Employee from a List of Employee, considering them to act as push and pop operations of the Stack data structure implemented in the form of Employee List.
- OR**
Write a function in Python PUSH(MStack,Names), where Names is a list of names. From this list push all names beginning from letter "M" in stack (MStack) implemented by using a list. Display the stack (MStack) if it has at least three names, otherwise display message "Not enough candidates".

SECTION – III

- 38 Knowledge Mining Organization has setup its new center at Chennai for its office and web based activities. It has 4 blocks of buildings as shown in the diagram below:



Center to Center distance between various blocks:

ADMIN TO RESEARCH	50 M
RESEARCH TO FINANCIAL	150 M
FINANCIAL TO MARKETING	25 M
ADMIN TO MARKETING	170 M
RESEARCH TO MARKETING	125 M
ADMIN TO FINANCIAL	90 M

Number of Computers

ADMIN	25
RESEARCH	150
FINANCIAL	50
MARKETING	10

- (i) Suggest the most suitable location to install the main server of this organization to get efficient connectivity.
(ii) Suggest the best cable layout for effective network connectivity of the building having server with all the other buildings
(iii) Suggest the placement of the following device with justification:
a) Repeater b) Switch

	<p>(iv) Suggest the topology of the network and network cable for efficiently connecting each computer installed in each of the buildings out of the following: Topologies : Bus Topology, Star Topology Network Cable : Single Pair Telephone Cable, Co-axial Cable, Ethernet Cable</p> <p>(v) The organization is planning to link its front office situated in the city in hilly region where cable connection is not feasible, suggest an economic way to connect it with reasonable high speed?</p>																																																				
39	<p>Write SQL queries for (i) to (v) based on the following given tables ACTIVITY & COACH</p> <p style="text-align: center;">ACTIVITY</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th>ACode</th> <th>ActivityName</th> <th>Stadium</th> <th>NOP</th> <th>Prize</th> <th>ScheduleDate</th> </tr> </thead> <tbody> <tr> <td>1001</td> <td>Relay 100x4</td> <td>Star Annex</td> <td>16</td> <td>10000</td> <td>2004-01-23</td> </tr> <tr> <td>1002</td> <td>HighJump</td> <td>Star Annex</td> <td>10</td> <td>12000</td> <td>2003-12-12</td> </tr> <tr> <td>1003</td> <td>Shot Put</td> <td>Super Power</td> <td>12</td> <td>8000</td> <td>2004-02-14</td> </tr> <tr> <td>1005</td> <td>Long Jump</td> <td>Star Annex</td> <td>12</td> <td>9000</td> <td>2004-01-01</td> </tr> <tr> <td>1008</td> <td>Discuss Throw</td> <td>Super Power</td> <td>10</td> <td>15000</td> <td>2004-03-19</td> </tr> </tbody> </table> <p style="text-align: center;">COACH</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th>PCode</th> <th>Name</th> <th>ACode</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>Sujatha Arnold</td> <td>1001</td> </tr> <tr> <td>2</td> <td>Ravindra Sharma</td> <td>1008</td> </tr> <tr> <td>3</td> <td>Jenelia</td> <td>1001</td> </tr> <tr> <td>4</td> <td>Imran Khan</td> <td>1003</td> </tr> </tbody> </table> <p>(i) To display name of all activities and Number of Players (NOP) of those activities which are conducted in 'Star Annex' Stadium in descending order of their NOP.</p> <p>(ii) To display the name of activity and Stadium of those activities which are organized in month of January.</p> <p>(iii) Write a query to display first ScheduleDate of 'Star Annex'.</p> <p>(iv) To display name of stadium uniquely.</p> <p>(v) To display ActivityName, Name of Coach from the tables ACTIVITY & COACH which are organized in 'Super Power'</p>	ACode	ActivityName	Stadium	NOP	Prize	ScheduleDate	1001	Relay 100x4	Star Annex	16	10000	2004-01-23	1002	HighJump	Star Annex	10	12000	2003-12-12	1003	Shot Put	Super Power	12	8000	2004-02-14	1005	Long Jump	Star Annex	12	9000	2004-01-01	1008	Discuss Throw	Super Power	10	15000	2004-03-19	PCode	Name	ACode	1	Sujatha Arnold	1001	2	Ravindra Sharma	1008	3	Jenelia	1001	4	Imran Khan	1003	5
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40	<p>A binary file "book.dat" has structure [bookno, ISBN, title, author, publisher].</p> <p>i. Write a user defined function EntryBook() to input data for a record and add to Book.dat</p> <p>ii Write a function CountBook(publisher) in Python which accepts the publisher as parameter and count and return number of books for that publisher in the binary file</p> <p>OR</p> <p>A binary file "CORONA.DAT" has structure (statename, noofinfected, recoveredPercent, deathPercent). Write a function countrecovered() in Python that would read the content of the file "CORONA.DAT" and display the details of those statename where recoveredPercent between 60 to 90 . Also display number of states falling in this range.</p>	5																																																			