

Kendriya Vidyalaya Sangathan, Jaipur Region
Pre Board Examination 2020-21
Class: XII Session: 2020-21
Computer Science (083)

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 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

Q.No	Part-A	Marks
	Section-I Attempt any 15 questions from question no 1 to 21.	
1	Can List be used as keys of a dictionary?	1
2	Which one is valid relational operator in Python i. / ii. = iii. == iv. and	1
3	Which of the following can be used as valid variable identifiers in Python? i) 4th Sum ii) Total iii) Number# iv) _Data	1
4	Identify the mutable data types? (i) List (ii) Tuple (iii) Dictionary (iv) String	1
5	What is the length of the tuple shown below? t=(((('a',1), 'b', 'c'), 'd', 2), 'e', 3)	1

6	A non-key attribute, whose values are derived from primary key of some other table. i. Alternate Key ii. Foreign Key iii. Primary Key iv. Candidate Key	1
7	What is Telnet?	1
8	State whether the following statements is True or False. When two entities are communicating and do not want a third party to listen, this situation is defined as secure communication.	1
9	Expand the term i. XML ii. SMS	1
10	Name two web scripting languages.	1
11	What is the output of the below program? def say(message, times = 1): print(message * times) say('Hello') say('World', 5)	1
12	Name the python library need to be imported to invoke following function i. sqrt() ii. randint()	1
13	Write a Python Dictionary named classtudent with keys 12101,12102,12103 and corresponding values as 'Rahul','Ravi','Mahesh' respectively	1
14	Identify the DDL Command. (i) Insert into command (ii) Create table command (iii) Drop table Command (iv) Delete command	1
15	t1=(2,3,4,5,6) print(t1.index(4)) output is i. 4 ii. 5 iii. 6 iv. 2	1
16	Which clause is used with a SELECT command in SQL to display the records in ascending order of an attribute?	1
17	Which of these is not an example of unguided media? (i) Optical Fibre Cable (ii) Radio wave (iii) Bluetooth (iv) Satellite	1
18	A relation has 45 tuples & 5 attributes, what will be the Degree & Cardinality of that relation? i. Degree 5, Cardinality 45 ii. Degree 45, Cardinality 5 iii. Degree 50, Cardinality 45 iv. Degree 50, Cardinality 2250	1
19	In SQL, which aggregate function is used to count all records of a table?	1

20	<p>Given employee={'salary':10000,'age':22,'name':'Mahesh'} employee.pop('age') what is output print(employee)</p>	1
21	What is HTML?	1
Section-II Both the case study based questions are compulsory. Attempt any 4 subparts from each question. Each question carries 1 mark.		
22	<p>Parth Patel of class 12 is writing a program to create a CSV file “emp.csv” which will contain employee code and name of some employees. He has written the following code. As a programmer, help him to successfully execute the given task.</p> <pre>import _____ #Line 1 def addemp(empcode,name):#to write/add data into the CSV file fo=open('emp.csv','a') writer=csv._____ (fo) #Line 2 writer.writerow([empcode,name]) fo.close() #csv file reading code def reademp(): with open('emp.csv','_____ ') as fin: #Line 3 filereader=csv.reader(fin) for row in filereader: for data in row: print(data,end='\t') print(end='\n') fin._____ #Line 4 addemp('E105','Parth') addemp("E101",'Arunima') addemp("E102",'Pralhad') reademp() #Line 5</pre> <p>Answer the following questions: (1 mark each)</p> <ol style="list-style-type: none"> Name the module he should import in Line 1. Fill in the blank in Line 2 to write the data in a CSV file. In which mode, Parth should open the file to read the data from the file(Line 3). Fill in the blank in Line 4 to close the file. Write the output he will obtain while executing Line 5. 	4
23	<p>ABC school is considering to maintain their student’s information using SQL to store the data. As a database administrator Harendra has decided that: Name of database : school Name of table : student Attributes of the table are as follow: AdmissionNo-numeric</p>	4

	FristName –character of size 30 LastName - character of size 20 DOB - date Table student																									
	<table border="1"> <thead> <tr> <th>AdmissionNo</th> <th>FirstName</th> <th>LastName</th> <th>DOB</th> </tr> </thead> <tbody> <tr> <td>012355</td> <td>Rahul</td> <td>Singh</td> <td>2005-05-16</td> </tr> <tr> <td>012358</td> <td>Mukesh</td> <td>Kumar</td> <td>2004-09-15</td> </tr> <tr> <td>012360</td> <td>Pawan</td> <td>Verma</td> <td>2004-03-03</td> </tr> <tr> <td>012366</td> <td>Mahesh</td> <td>Kumar</td> <td>2003-06-08</td> </tr> <tr> <td>012367</td> <td>Raman</td> <td>Patel</td> <td>2007-03-19</td> </tr> </tbody> </table>	AdmissionNo	FirstName	LastName	DOB	012355	Rahul	Singh	2005-05-16	012358	Mukesh	Kumar	2004-09-15	012360	Pawan	Verma	2004-03-03	012366	Mahesh	Kumar	2003-06-08	012367	Raman	Patel	2007-03-19	
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	Attempt any four questions																									
	(i) What is the degree and cardinality of the table student	1																								
	(ii) Identify the attribute best suitable to be declared as Primary Key	1																								
	(iii) Insert the following data in table student AdmissionNo=012368 FirstName = Kamlesh LastName = Sharma DOB =01 Jan 2004	1																								
	(iv) Harendra wants to remove the data of mukesh whose admission no is 012358, suggest him SQL command to remove the above said data.	1																								
	(v) To remove the table student which command is used : i. Delete from student ii. Drop table student iii. Drop database school iv. Delete student from school	1																								
	Part-B																									
	Section-I																									
24	Differentiate between “w” and “r” modes used in Python. Illustrate with suitable example.	2																								
25	Differentiate between fatchone() and fatchmany() method with suitable example.	2																								
26	What is significance of Primary Key? Give a suitable example of Primary key from a table containing some meaningful data.	2																								
27	Predict the output for following code. <pre>def replaceV(st): newstr = "" for character in st: if character in 'aeiouAEIOU': newstr += '*' else: newstr += character return newstr st = "Hello how are you" st1 = replaceV(st) print("The original String is:", st) print("The modified String is:", st1)</pre>	2																								
28	Rewrite the following code after removing syntax error and underline the	2																								

	(iii) Select JobId, count(*) from Employee group by JobId																																																											
35	<p>Write a function in python that displays the number of lines starting with 'H' in the file "para.txt". Example, if file contains: Whose woods these are I think I know. His house is in the village though; He will not see me stopping here To watch his woods fill up with snow Then the lines count should be 2</p> <p style="text-align: center;">OR</p> <p>Write a function countmy() in Python to read file Data.txt and count the number of times "my" occur in file. For example, if the file contain This is my website. I have displayed my preferences in the choice section The countmy() function should display the output as : " my occurs 2 times"</p>	3																																																										
36	Write a user define function in Python for push(list) and pop(list) for performing push and pop operations with a stack of list containing integers.	3																																																										
37	<p>Write a function LShift(arr,n) in python, which accepts a list of numbers and n as numeric value by which all elements of the list are shifted to left. Sample Input data of the list Arr=[10,20,30,40,12,11]. n=2 Output Arr[30,40,50,12,11,10,20]</p>	3																																																										
Section-III																																																												
38	<p>Write SQL Commands for the following queries based on the relations PRODUCT and CLIENT given below.</p> <p>Table: Product</p> <table border="1"> <thead> <tr> <th>P_ID</th> <th>ProductName</th> <th>Manufacturer</th> <th>Price</th> <th>ExpiryDate</th> </tr> </thead> <tbody> <tr> <td>TP01</td> <td>Talcum Powder</td> <td>LAK</td> <td>40</td> <td>2011-06-26</td> </tr> <tr> <td>FW05</td> <td>Face Wash</td> <td>ABC</td> <td>45</td> <td>2010-12-01</td> </tr> <tr> <td>BS01</td> <td>Bath Soap</td> <td>ABC</td> <td>55</td> <td>2010-09-10</td> </tr> <tr> <td>SH06</td> <td>Shampoo</td> <td>XYZ</td> <td>120</td> <td>2012-04-09</td> </tr> <tr> <td>FW12</td> <td>Face Wash</td> <td>XYZ</td> <td>95</td> <td>2010-08-15</td> </tr> </tbody> </table> <p>Table: Client</p> <table border="1"> <thead> <tr> <th>C_ID</th> <th>ClientName</th> <th>City</th> <th>P_ID</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>Cosmetic Shop</td> <td>Delhi</td> <td>FW05</td> </tr> <tr> <td>6</td> <td>Total Health</td> <td>Mumbai</td> <td>BS01</td> </tr> <tr> <td>12</td> <td>Live Life</td> <td>Delhi</td> <td>SH06</td> </tr> <tr> <td>15</td> <td>Pretty One</td> <td>Delhi</td> <td>FW05</td> </tr> <tr> <td>16</td> <td>Dreams</td> <td>Bengaluru</td> <td>TP01</td> </tr> <tr> <td>14</td> <td>Expressions</td> <td>Delhi</td> <td>NULL</td> </tr> </tbody> </table> <p>(i) To display the ClientName and City of all Mumbai- and Delhi-based clients in Client table. (ii) Increase the price of all the products in Product table by 10%. (iii) To display the ProductName, Manufacturer, ExpiryDate of all the products that expired on or before '2010-12-31'.</p>	P_ID	ProductName	Manufacturer	Price	ExpiryDate	TP01	Talcum Powder	LAK	40	2011-06-26	FW05	Face Wash	ABC	45	2010-12-01	BS01	Bath Soap	ABC	55	2010-09-10	SH06	Shampoo	XYZ	120	2012-04-09	FW12	Face Wash	XYZ	95	2010-08-15	C_ID	ClientName	City	P_ID	1	Cosmetic Shop	Delhi	FW05	6	Total Health	Mumbai	BS01	12	Live Life	Delhi	SH06	15	Pretty One	Delhi	FW05	16	Dreams	Bengaluru	TP01	14	Expressions	Delhi	NULL	5
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	<p>(iv) To display C_ID, ClientName, City of all the clients (including the ones that have not purchased a product) and their corresponding ProductName sold.</p> <p>(v) To display productName, Manufacturer and ClientName of Mumbai City.</p>																					
39	<p>Quick Learn University is setting up its academic blocks at Prayag Nagar and planning to set up a network. The university has 3 academic blocks and one human resource Centre as shown in the diagram given below:</p> <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="border: 1px solid green; border-radius: 15px; padding: 10px; width: 150px; text-align: center;">Business</div> <div style="border: 1px solid green; border-radius: 15px; padding: 10px; width: 150px; text-align: center;">Technology Block</div> </div> <div style="display: flex; justify-content: space-around; align-items: center; margin-top: 20px;"> <div style="border: 1px solid green; border-radius: 15px; padding: 10px; width: 150px; text-align: center;">Law Block</div> <div style="border: 1px solid green; border-radius: 15px; padding: 10px; width: 150px; text-align: center;">HR Centre</div> </div> <p>Centre-to-Centre distance between various blocks is as follows:</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td>Law block to business block</td> <td style="text-align: center;">40 m</td> </tr> <tr> <td>Law block to technology block</td> <td style="text-align: center;">80 m</td> </tr> <tr> <td>Law block to HR block</td> <td style="text-align: center;">105 m</td> </tr> <tr> <td>Business block to technology block</td> <td style="text-align: center;">30 m</td> </tr> <tr> <td>Business block to HR block</td> <td style="text-align: center;">35 m</td> </tr> <tr> <td>Technology block to HR block</td> <td style="text-align: center;">15 m</td> </tr> </table> <p>Number of computers in each of the buildings is as follows:</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td>Law block</td> <td style="text-align: center;">15</td> </tr> <tr> <td>Technology block</td> <td style="text-align: center;">40</td> </tr> <tr> <td>HR Centre</td> <td style="text-align: center;">115</td> </tr> <tr> <td>Business block</td> <td style="text-align: center;">25</td> </tr> </table> <p>(a) Suggest a cable layout of connection between the blocks. (b) Suggest the most suitable place to house the server of the organization with suitable reason. (c) Which device should be placed/installed in each of these blocks to efficiently connect all the computers within these blocks? (d) The university is planning to link its sales counters situated in various parts of the other cities. Which type of network out of LAN, MAN or WAN will be formed? (e) Which network topology may be preferred in each of these blocks?</p>	Law block to business block	40 m	Law block to technology block	80 m	Law block to HR block	105 m	Business block to technology block	30 m	Business block to HR block	35 m	Technology block to HR block	15 m	Law block	15	Technology block	40	HR Centre	115	Business block	25	5
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40	<p>(a) Create a binary file "employee.dat" that stores the records of employees and display them one by one. (b) Display the records of all those employees who are getting salaries between 25000 to 30000.</p> <p style="text-align: center;">OR</p> <p>A binary file student.dat has structure (rollno,name,class,percentage). Write a program to updating a record in the file requires roll number to be fetched from the user whose name is to be updated</p>	5																				