

Kendriya Vidyalaya Sangathan
Silchar Region
Class XII 2nd Pre-Board Examination 2020-21
COMPUTER SCIENCE

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

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 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.

All programming questions are to be answered using Python Language only

Question No.	Part-A	Marks
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	Which of the following is not an assignment Operator? i. **= ii. ./= iii. == iv. %=	1
2	Given the lists L=[1,3,6,82,5,7,11,92] , write the output of print(L[::-1])	1
3	What will be the output of following code snippet? x="iamaprogrammer" print(x[2:]) print(x[3:8])	1

4	Identify mutable and immutable objects from the following: i. List ii. String iii. Dictionary iv. Tuple	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) T[2] = -29 c) print(max(T)) d) print(len(T))	1
6	Declare a dictionary of toppers of your class with their name as keys and marks obtained as their value.	1
7	A tuple is declared as T = (2,5,6,9,8) What will be the value of sum(T)?	1
8	Name the python library module which is to be imported to invoke the following functions. i. cos() ii. randint()	1
9	Name the protocol that is used to send emails.	1
10	Your friend Ranjana complains that somebody has created a fake profile on Facebook and defaming her character with abusive comments and pictures. Identify the type of cybercrime for these situations.	1
11	Ms. Ravina is using a table 'customer' with custno, name, address and phonenumber. She needs to display name of the customers, whose name start with letter 'S'. She wrote the following command,which did not give the result. <i>Select * from customer where name="S%";</i> Help Ms. Ravina to run the query by removing the errors and write the correct query	1
12	In SQL, what is the use of LIKE operator?	1
13	What is returned by SELECT SUBSTR('TUTORIALS POINT', 1, 9)	1
14	To select the record with the smallest value of the Price column. SELECT _____ FROM Products;	1
15	Which of these is not an example of unguided media? (i) Optical Fibre Cable (ii) Radio wave (iii) Bluetooth (iv) Satellite	1
16	In which of the following file modes the existing data of the file will not be lost? rb, ab, w, w+b, a+b, wb, wb+, w+, r+	1
17	Yogendra intends to position the file pointer to the beginning of a text file. Write Python statement for the same assuming "F" is the Fileobject.	1
18	In SQL, write the query to display structure of table student.	1
19	Write the expanded form of SMTP.	1
20	Which clause is similar to "HAVING" clause in Mysql? a) SELECT b) WHERE c) FROM	1

	d) None of the mentioned																																									
21	Rearrange the following terms in increasing order of data transfer rates. Gbps, Mbps, Tbps, Kbps, bps	1																																								
Section-II																																										
	Both the Case study based questions are compulsory. Attempt any 4 sub parts from each question. Each question carries 1 mark																																									
22	<p>As a database administer, Amit has decided that Create the following table items.</p> <table border="1"> <thead> <tr> <th>Column name</th> <th>Data type</th> <th>Size</th> <th>Constrain</th> </tr> </thead> <tbody> <tr> <td>Itemno</td> <td>Number</td> <td>3</td> <td>Primary key</td> </tr> <tr> <td>Iname</td> <td>Varchar</td> <td>15</td> <td></td> </tr> <tr> <td>Price</td> <td>Number</td> <td>10,2</td> <td></td> </tr> <tr> <td>Quantity</td> <td>Number</td> <td>3</td> <td></td> </tr> </tbody> </table> <p>Table: Item</p> <table border="1"> <thead> <tr> <th>Itemno</th> <th>Iname</th> <th>Price</th> <th>Quantity</th> </tr> </thead> <tbody> <tr> <td>101</td> <td>Soap</td> <td>50</td> <td>100</td> </tr> <tr> <td>102</td> <td>Powder</td> <td>100</td> <td>50</td> </tr> <tr> <td>103</td> <td>Face Cream</td> <td>150</td> <td>25</td> </tr> <tr> <td>104</td> <td>Pen</td> <td>50</td> <td>200</td> </tr> </tbody> </table> <p>(a) Identify the attribute best suitable to be declared as a primary key. (b) Write the degree and cardinality of the table ITEM (c) Write query to create table item. (d) write query to insert a new row(105,Pencil,10,100). (e) Display the item information whose name starts with letter 's'</p>	Column name	Data type	Size	Constrain	Itemno	Number	3	Primary key	Iname	Varchar	15		Price	Number	10,2		Quantity	Number	3		Itemno	Iname	Price	Quantity	101	Soap	50	100	102	Powder	100	50	103	Face Cream	150	25	104	Pen	50	200	4
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23	<p>Neha of class 12 is writing a program to find the size of the file in bytes, number of lines and number of words.</p> <pre># reading data from a file and find size, lines, words f = open('Lines.txt', _____) #line 1 str = f.read() size = _____ # line 2 print('size of file n bytes ', size) _____ # line 3 L = f.readlines() word = L.split() print('Number of lines ', _____) # line 4 print('Number of words ', len(word)) _____ # line 5</pre> <p>a) Write the mode of file for line 1. b) Find the number of bytes for line2. c) Move the file pointer to beginning of file for line 3. d) Write function to find number of lines for line 4. e) write function to close file for line 5.</p>	4																																								

Part B		
SECTION I		
24	What will be the output of the following? (a)87//5 (b)(87//5.0)==(87//5) (c)87//5.0 (d)17%5.0	2
25	Answer the following questions in the context of a computer lab with 100 computers. a. Which device is used to connect all computers inside the lab? b. Which device is used to connect all computers to the internet using telephone wire? OR Ms. Anjali Singh, in charge of Knowledge centre in ABC school, recently discovered that the communication between her centre and the primary block of the school is extremely slow and signals drop quite frequently. The distance between these two blocks is 140 meters. a. Name the type of network. b. Name the device which may be used for smooth communication.	2
26	What do you mean by a transmission medium? Differentiate between guided and unguided transmission media.	2
27	What are augmented assignment operators? How are they useful? OR What are mutable and immutable types in Python? List both of them.	2
28	Find the error .Underline and remove error(s) <pre>def multiply(numbers); total = 0 if x in numbers: total =* x return total print(multiply((8, 2, 3, -1, 7)))</pre>	2
29	Consider the following code: <pre>import random x=random.random() y=random.randint(0,4) print(int(x),":",y+int(x))</pre> Choose the possible output(s) from the given options. Also write the least and highest value that may be generated. i. 0:0 ii. 1:6 iii. 2:4 iv. 0:3	2

30	<p>The name column of a table 'student' is given below.</p> <p>Name Anu Rohan Deepak Kannika Kunal</p> <p>Based on the information, find the output of the following queries:</p> <p>a) Select name from student where name like "%a"; b) Select name from student where name like "%h%";</p>	2		
31	<p>What is the role of method commit() and execute() in database connectivity.</p>	2		
32	<p>A customer table is created with cno,cname, and address columns. Neha write following query to delete row of customer Evaluate the following statement,Whether it is correct or not? Delete cname from customer;</p>	2		
33	<p>Find and write the output of the following python code:</p> <pre>defmodlist(): l=[] l1=[] l2=[] for i in range(1,10): l.append(i) for i in range(10,1,-2): l1.append(i) for i in range(len(l1)): l2.append(l1[i]+l[i]) l2.append(len(l)-i+1) print(l2) modlist()</pre>	2		
Section- II				
34	<p>Write a function calculation() such that it can accept two variables and calculate the addition and subtraction of it. And also it must return both addition and subtraction in a single return call.</p>	3		
35	<p>Write a program that counts the number of characters up to the first \$ in a text file.</p> <p style="text-align: center;">OR</p> <p>Create a binary file with name and roll number. Search for a given roll number and display the name, if not found display appropriate message.</p>	3		
36	<p>Write SQL queries for (i) and (ii) and find outputs for SQL queries (iii) and (iv), which are based on the tables.</p> <p>Table: VEHICLE</p> <table border="1" data-bbox="360 1906 1315 2007"> <tr> <td data-bbox="360 1906 831 2007">VCODE</td> <td data-bbox="831 1906 1315 2007">VEHICLE TYPE</td> </tr> </table>	VCODE	VEHICLE TYPE	3
VCODE	VEHICLE TYPE			

V01	VOLVO BUS	150
V02	AC DELUXE BUS	125
V03	ORDINARY BUS	80
V05	SUV	30
V04	CAR	18

Note: PERKM is Freight Charges per kilometer

Table: TRAVEL

CNO	CNAME	TRAVELDATE	KM	VCODE	NOP
101	K. Niwal	2015-12-13	200	V01	32
103	Fredrick Sym	2016-03-21	120	V03	45
105	Hitesh Jain	2016-04-23	450	V02	42
102	Ravi Anish	2016-01-13	80	V02	40
107	John Malina	2015-02-10	65	V04	2
104	Sahanubhuti	2016-01-28	90	V05	4
106	Ramesh Jaya	2016-04-06	100	V01	25

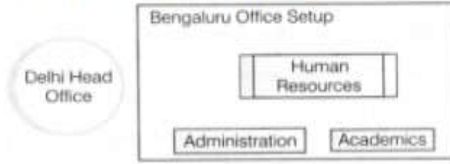
Note:

- Km is Kilometers travelled
- NOP is number of passengers travelled in vehicle
 - (i) To display CNO, CNAME, TRAVELDATE from the table TRAVEL in descending order of CNO.
 - (ii) To display the CNAME of all the customers from

	<p>the table TRAVEL who are traveling by vehicle with code V01 or V02.</p> <p>(iii) SELECT COUNT(*),VCODE FROM TRAVEL GROUP BY VCODE HAVING COUNT(*)>1;</p> <p>(iv) SELECT A.VCODE, CNAME, VEHICLETYPE FROM TRAVEL A, VEHICLE B WHERE A.VCODE = B.VCODE AND KM<90;</p>	
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37	<p>Write DoPush(customer) to add a new customer and display customers from a list of customer names considering them as push and display operations of stack.</p> <p style="text-align: center;">OR</p> <p>Write a function in Python POP(Arr), where Arr is a stack implemented by a list of numbers. The function returns the value deleted from the stack.</p>	3
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Section-III

38	<p>G.R.K International Inc. is planning to connect its Bengaluru Office Setup with its Head Office in Delhi. The Bengaluru Office G.R.K. International Inc. is spread across an area of approx. 1 square kilometres consisting of 3 blocks. Human Resources, Academics and Administration. You as a network expert have to suggest answers to the four queries (i) to (iv) raised by them. Note Keep the distances between blocks and number of computers in each block in mind, while providing them the solutions.</p> <p>while providing them the solutions.</p> <div style="display: flex; justify-content: space-around;"> <div style="text-align: center;">  </div> <div> <p>Shortest distances between various blocks</p> <table border="1"> <tr><td>Human Resources to Administration</td><td>100m</td></tr> <tr><td>Human Resources to Academics</td><td>65m</td></tr> <tr><td>Academics to Administration</td><td>110m</td></tr> <tr><td>Delhi Head Office to Bengaluru Office Setup</td><td>2350 km</td></tr> </table> <p>Number of computers installed at various block</p> <table border="1"> <thead> <tr><th>Block</th><th>Number of Computers</th></tr> </thead> <tbody> <tr><td>Human Resources</td><td>155</td></tr> <tr><td>Administration</td><td>20</td></tr> <tr><td>Academics</td><td>100</td></tr> <tr><td>Delhi Head Office</td><td>20</td></tr> </tbody> </table> </div> </div> <ol style="list-style-type: none"> 1. Suggest the most suitable block in the Bengaluru Office Setup to host the server. Give a suitable reason with your suggestion. 2. Suggest the cable layout among the various blocks within the Bengaluru Office Setup for connecting the blocks. 3. Suggest a suitable networking device to be installed In each of the blocks essentially required for connecting computers inside the blocks with fast and efficient connectivity. 4. Suggest the most suitable media to provide secure, fast and reliable data connectivity between Delhi Head Office and the Bengaluru Office Setup. 5. Suggest the placement of a Repeater in the network with justification. 	Human Resources to Administration	100m	Human Resources to Academics	65m	Academics to Administration	110m	Delhi Head Office to Bengaluru Office Setup	2350 km	Block	Number of Computers	Human Resources	155	Administration	20	Academics	100	Delhi Head Office	20	5
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39

Write SQL queries for (i) to (iv) and find outputs for SQL queries (v) to (vi), which are based on the tables.

DVD

DVD		
DCODE	DTITLE	DTYPE
F101	Henry Martin	Folk
C102	Dhrupad	Classical
C101	The Planets	Classical
F102	Universal Soldier	Folk
R102	A day in life	Rock

MEMBER			
MID	NAME	DCODE	ISSUEDATE
101	AGAM SINGH	R102	2017-11-30
103	ARTH JOSEPH	F102	2016-12-13
102	NISHA HANS	C101	2017-07-24

1. To display all details from the table MEMBER in descending order of ISSUEDATE.
2. To display the DCODE and DTITLE of all Folk Type DVDs from the table DVD.
3. To display the DTYPE and number of DVDs in each DTYPE from the table DVD.
4. To display all NAME and ISSUEDATE of those members from the table MEMBER who have DVDs issued (i.e., ISSUEDATE) in the year 2017.
5. SELECT MIN(ISSUEDATE) FROM MEMBER;
6. SELECT DISTINCT DTYPE FROM DVD;

40	<p>(a) Create a binary file “employee” that stores the records of employees and display them one by one.</p> <p>(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 (admission_number, Name, Percentage). Write a function <i>countrec()</i> in Python that would read contents of the file “STUDENT.DAT” and display the details of those students whose percentage is above 75. Also display number of students scoring above 75%</p>	5
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