



**COMMON PRE-BOARD EXAMINATION: 2022-23**  
**Class-XII Subject: COMPUTER SCIENCE (083)**



**MARKING SCHEME**

SECTION A		
(1 mark to be awarded for every correct answer)		
1.	State True or False  In Dynamic Typing the datatype attached with the variable can change during the program run.	1
Ans)	True	
2.	Which of the following is/are invalid identifier(s) in Python?  (a) _number      (b) None      (c) 123int      (d) decimal	1
Ans)	b and c None, 123int	
3.	Given the following dictionary:  D1={"Math":25,"CS":6,"Biology":23,"Chemistry":20}  What is printed by the following statement?  print (25 in D1)  A.True B.False C.Error D.None	1
Ans)	False	
4.	Seth was attending a seminar on the topic Python operators. He was given a set of questions to solve. In one particular question he had a doubt about the output generated. Help him to solve it, with your understanding of Operators.  <pre>V1=True V2=False V3=False if V1 or V2 and V3:     print ("Computer") else:     print ("Science")</pre>	1

Ans)	Computer	
5.	<p>Select the correct output of the code:</p> <pre>a = "assistance" a = a.partition('a') b = a[0] + "-" + a[1] + "-" + a[2] print (b)</pre> <p>a) -a-ssistance b) -a-ssist-nce c) a-ssist-nce d) -a-ssist-ance</p>	1
Ans)	a) -a-ssistance	
6	<p>If a text file is opened in w+ mode, then what is the initial position of file pointer/cursor?</p> <p>a. Beginning of file b. End of the file c. Beginning of the last line of text file d. Undetermined</p>	1
Ans)	a)Beginning of the file	
7	<p>An alternate key is a _____, which is not the primary key of the table.</p> <p>a. Primary Key b. Foreign Key c. Candidate Key d. Unique Key</p>	
Ans)	c) Candidate key	
8	<p>Command to remove the row(s) from table Category is:</p> <p>a. drop table Category; b. drop from Category; c. delete * from Category; d. delete from Category;</p>	
Ans)	d)delete from Category;	
9	<p>What will be the values stored in final_S upon execution if two strings S1 and S2 are taken as "Delhi" and "New Delhi" respectively?</p> <p>(i) final_S = S1 &gt; S 2 (ii) final_S = S1.lower ( ) &lt; S2</p>	1
Ans)	<p>(i)False (ii)False</p>	
10	<p>A relationship is formed via ----- ,that relates two tables where one table references another table's key.</p>	1

	<ul style="list-style-type: none"> <li>a. Candidate key</li> <li>b. Primary key</li> <li>c. Foreign key</li> <li>d. Check constraint</li> </ul>	
Ans)	c) Foreign key	
11	<p>Syntax of seek function in Python is myfile.seek(offset, reference_point) where myfile is the file object. What is the default value of reference_point?</p> <ul style="list-style-type: none"> <li>a. 0</li> <li>b. 1</li> <li>c. 2</li> <li>d. 3</li> </ul>	
Ans)	a) 0	
12	<p>In SQL where clause-----</p> <ul style="list-style-type: none"> <li>a. limits the row data being returned</li> <li>b. limits the column data being returned</li> <li>c. both (a) and (b) are correct</li> <li>d. neither (a) nor (b) is correct</li> </ul>	
Ans)	a) limits the row data being returned	
13	<p>_____ is the protocol used to send emails to the e-mail server and _____ is the protocol used to download mail to the client computer from the server.</p> <ul style="list-style-type: none"> <li>(a) SMTP, POP</li> <li>(b) HTTP, POP</li> <li>(c) FTP, TELNET</li> <li>(d) HTTP, IMAP</li> </ul>	
Ans)	SMTP, POP	
14	<p>Consider the expression given below. The value of X is:</p> $X = 2 + 9 * ((3 * 12) - 8) / 10$ <ul style="list-style-type: none"> <li>a) 30.0</li> <li>b) 27.2</li> <li>c) 28.4</li> <li>d) 30.8</li> </ul>	1
Ans)	b) 27.2	
15	<p>Table Student has the columns RNO and SCORE. It has 3 rows in it. Following two SQL statements were executed, that produced the outputs as 45 and 2 respectively:</p>	1

	(i) Select AVG(SCORE) from Student; (ii) Select COUNT(SCORE ) from Student; Data in SCORE column is same in two rows. What data is present in the SCORE column in the three rows ?					
Ans)	<table><tr><td>SCORE</td></tr><tr><td>45</td></tr><tr><td>45</td></tr><tr><td>NULL</td></tr></table>	SCORE	45	45	NULL	
SCORE						
45						
45						
NULL						
16	Which method of cursor class is used to get the number of rows affected after any of the insert/update/delete operation is executed from Python?  a. cursor.rowcount b. cursor.rowcount c. cursor.fetchall() d. cursor.executequery()	1				
Ans)	cursor.rowcount					
	Q17 and 18 are ASSERTION AND REASONING based questions. Mark the correct choice as  a. Both A and R are true and R is the correct explanation for A b. Both A and R are true and R is not the correct explanation for A c. A is True but R is False d. A is false but R is True					
17	Assertion (A): Preserving the data for future purpose in Python is called pickling.	1				
	Reason (R): Unpickling is a technique that returns the byte stream produced by pickling back into Python objects.					
Ans)	d)A is false but R is True					
18	Assertion (A) : A variable defined outside any function or any block is known as a global variable. Reason ( R ) : A variable defined inside any function or a block is known as a local variable.	1				
Ans)	b) Both A and R are true and R is not the correct explanation for A					
	SECTION B					
19	Consider the following code written by a programming student. The student is a beginner and has made few errors in the code. You are required to rewrite the code after correcting it and underline the corrections.  Def swap(d): n = { }	2				

	<pre>values = d.values() keys = list(d.keys[]) k = 0 for i in values     n(i) = keys[k]     k+=1 return n result = swap({'a':1,'b':2,'c':3}) print(result)</pre>									
Ans)	<pre>def swap(d):     n = { }     values = d.values()     keys = list(d.keys())     k = 0     for i in <u>values</u>:         <u>n[i]</u> = keys[k]         <u>k+=1</u>     return n result = swap({'a':1,'b':2,'c':3}) print(result)  (½ mark for each correct correction made and underlined.)</pre>									
20	What is the difference between Radio wave Transmission and Microwave Transmission?	2								
Ans)	<table><tr><td>Radio waves</td><td>Microwaves</td></tr><tr><td>It travels in Omni-directional</td><td>It travels in straight line</td></tr><tr><td>It can penetrate solid objects</td><td>It cannot penetrate solid objects</td></tr><tr><td>Sender and receiver antenna need not to be properly aligned</td><td>Sender and receiver antenna must be proper aligned as it is line-of-sight transmission</td></tr></table> <p>(1 mark for each correct difference - Any valid two points)</p>	Radio waves	Microwaves	It travels in Omni-directional	It travels in straight line	It can penetrate solid objects	It cannot penetrate solid objects	Sender and receiver antenna need not to be properly aligned	Sender and receiver antenna must be proper aligned as it is line-of-sight transmission	
Radio waves	Microwaves									
It travels in Omni-directional	It travels in straight line									
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Sender and receiver antenna need not to be properly aligned	Sender and receiver antenna must be proper aligned as it is line-of-sight transmission									
	OR									
	Differentiate between Web server and Web browser.									
Ans)	<p>Web Browser: A web browser is a software which is used for displaying the content on web page(s). It is used by the client to view websites. Examples of web browser—Google Chrome, Firefox, Internet Explorer, Safari, Opera, etc.</p> <p>Web Server: A web server is a software which entertains the request(s) made by a web browser. A web server has different ports to handle different requests from web browser, like generally FTP request is handled at Port 110 and HTTP request is handled at Port 80. Example of web server is Apache.</p>									

	( 1 mark for each correct point of difference- Any valid two points)	
21	<p>a. Write the output of the code given below:</p> <pre> upper = 'CYBERCRIME' seq = '12345678' my_list2 = upper[6:] my_list3 = seq[-3:] final_list = my_list2 + my_list3 print( my_list2 , my_list3 ) </pre>	1
Ans)	<p><b>RIME 678</b></p> <p>(1 mark for correct answer)</p>	
	<p>b. What will be the output of the following Python code?</p> <pre> Runs = {'virat':50, 'rohit':100, 'rahul':80, 'rohit':120, 'Virat':105} Runs['jadeja'] = 50 total = 0 for k in Runs:     total+=Runs[k] print(total) </pre>	1
Ans)	<p><b>405</b></p> <p>(1 mark for correct answer)</p>	

22	<p>Consider the related tables in a database given below and answer the questions given.</p> <p>TABLE:HOLIDAYS</p> <table><tr><td>PKG_NO</td><td>LOC</td><td>DEP_AIRPORT</td><td>NO_DAYS</td><td>ST_DATE</td><td>DEP_DATE</td></tr><tr><td>T101</td><td>Tenerife</td><td>Manchester</td><td>7</td><td>21/5/02</td><td>TH</td></tr><tr><td>T102</td><td>Tenerife</td><td>Manchester</td><td>14</td><td>1/6/02</td><td>TU</td></tr><tr><td>C101</td><td>Corfu</td><td>Gatwick</td><td>14</td><td>11/10/02</td><td>SA</td></tr><tr><td>C101</td><td>Rhodes</td><td>Heathrow</td><td>7</td><td>15/6/02</td><td>MO</td></tr></table> <p>TABLE:PACKAGE</p> <table><tr><td>PACKAGENO</td><td>ACTIVITY</td><td>COSTPERDAY</td></tr><tr><td>T101</td><td>Sailing</td><td>300</td></tr><tr><td>K101</td><td>River Rafting</td><td>1200</td></tr><tr><td>T102</td><td>Volcano Exploration</td><td>530</td></tr><tr><td>C101</td><td>River Rafting</td><td>282</td></tr><tr><td>R101</td><td>Windsurfing</td><td>725</td></tr></table>	PKG_NO	LOC	DEP_AIRPORT	NO_DAYS	ST_DATE	DEP_DATE	T101	Tenerife	Manchester	7	21/5/02	TH	T102	Tenerife	Manchester	14	1/6/02	TU	C101	Corfu	Gatwick	14	11/10/02	SA	C101	Rhodes	Heathrow	7	15/6/02	MO	PACKAGENO	ACTIVITY	COSTPERDAY	T101	Sailing	300	K101	River Rafting	1200	T102	Volcano Exploration	530	C101	River Rafting	282	R101	Windsurfing	725	2
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	<p>a. Identify the foreign key of table HOLIDAYS. Justify your answer.</p> <p>PKG_NO</p> <p>It is the linking field of the two tables and the Primary key of the parent table Package.</p> <p>(1/2 mark for correct fieldname and ½ mark for correct reason)</p> <p>b. Aman tried to insert the following record into the table HOLIDAYS but he was not able to. What could be the possible reason?</p> <p>R102,Moher,Dublin,2,23/10/02,MO</p> <p>As per Referential Integrity, a record cannot be added in the related table if it doesn't exist in the parent table.</p> <p>(1 mark for correct reason)</p>																																																	
23	<p>a. Write the full forms of the following:</p> <p>i. Wi-Fi</p> <p>ii. TCP/IP</p>	2																																																
Ans)	<p>Wireless Fidelity</p> <p>Transmission Control Protocol/Internet Protocol</p>																																																	

	(1/2 mark for every correct full form)	
	b. Mention one point of difference between HTTP and FTP	
Ans)	<p>HTTP is a protocol used to transfer files from a web server onto a web browser in order to view a web page that is on the Internet.</p> <p>FTP is a protocol used to upload files from a workstation to an FTP server or download files from an FTP station to workstations.</p> <p>(1 mark for correct difference)</p>	
24	<p>Predict the output of the Python code given below:</p> <pre> X = 50  def Func1(start1):     global X     start1 += X     X += 20     start1 = Func2(start1)     return start1  def Func2(start1):     global X     X += 10     start1 += X     return start1  start = 100 start = Func1(start) print(start,X) </pre>	2
	<p>230 80</p> <p>(1 mark for each correct number)</p>	
	OR	
	Predict the output of the Python code given below:	



```
S="1234abc"
```

```
L=list(S)
```

```
T=tuple()
```

```
index = len(L)
```

```
while index>0:
```

```
    if L[index-1].isalpha():
```

```
        T+=tuple(L[index-1])
```

```
    index = index-1
```

```
print(T)
```

Ans) ('c', 'b', 'a')

( ½ mark for each correct alphabet , ½ mark for enclosing in parenthesis)

25 Write two differences between HAVING and WHERE clauses in SQL.

2

Differences	
where clause	having clause
Used to put a condition on individual row of a table	Used to put a condition on individual group formed by group by clause in a select statement
Cannot handle aggregate functions	Used in conjunction with group by clause and hence can handle aggregate functions

(1 mark each for each correct difference)

Or, one difference (1 mark) and one proper example (1 mark) is also valid

OR

Differentiate between a Candidate Key and Alternate Key with the help of an example.

Candidate key- All attributes or columns eligible to be chosen as Primary key ie no null values, no duplicate values

Alternate key- All candidate keys which are not chosen as Primary key

GrNo	Name	PP Number
1234	Arun	A123456
4567	Arnav	Z345678
5678		A346878

In the above table Student, PP Number and GrNo are candidate keys out of which GrNo is chosen

as Primary key. So, PP Number is the Alternate key.

(1 mark for the correct difference)

( 1 mark for any relevant example)

### SECTION C

26

a. Consider the following tables – Employee and Department

1+2

#### EMPLOYEE

Ecode	Ename
M01	Bhavya
M02	Krish
S01	Mehul
S03	Sanket
A05	Vansh
H03	Pallavi

#### DEPARTMENT

Ecode	Department
M01	Marketing
S01	Sales
A05	Accounts
H03	HR

What will be the output of the following statement?

SELECT E.Ecode,E.Ename,D. Department FROM EMPLOYEE E, DEPARTMENT D  
WHERE E.Ecode = D.Ecode;

Ans)

E.Ecode	Ename	D.Department
M01	Bhavya	Marketing
S01	Mehul	Sales
A05	Vansh	Accounts
H03	Pallavi	HR

(1 mark for correct output)

b. Write the output of the queries (i) to (iv) based on the table, TEACHER given below:

**Table : Teacher**

Tno	T_name	Department	Basic	Allowances
T16	Rakesh Sharma	Physics	27200	1500
T11	Vivek Rawat	Chemistry	34500	1200
T13	Dinesh Goel	Computer	30600	1300
T14	Lokesh Rathore	Commerce	44200	
T15	Lakshmi	Physics	43800	2000
T18	Ramkrishana	Commerce	24500	2500
T17	Suresh Kumar	Chemistry	32300	1900
T10	Raj Mohan	Computer	41700	1600

i. Select Tname,department from teacher where Basic between 27200 and 32300 order by T\_name;

T_name	department
Dinesh Goel	Computer
Rakesh Sharma	Physics
Suresh Kumar	Chemistry

( ½ mark for the correct output)

ii. Select department, count(Tno) from Teacher group by Department having count(\*)>=2;

department	count(Tno)
Physics	2
Chemistry	2
Computer	2
Commerce	2

( ½ mark for the correct output)

iii. Select sum(Basic),avg(Allowances) from Teacher where Basic>=30000 and Allowances IN(1200,1900,2000);

sum(Basic)	avg(Allowances)
110600	1700.00

( ½ mark for the correct output)

iv. Select count(distinct Allowances) from Teacher;

count(distinct Allowances)
7

( ½ mark for the correct output)

27	<p>Write a function COUNTLINES() to count the number of lines in a text file, 'DATA.TXT' which starts and end with 's' and 'g' respectively.</p> <p>Example:</p> <p>If the file content is as follows:</p> <p>Top Reasons to Learn Python:</p> <p>Data science.</p> <p>Scientific and mathematical computing.</p> <p>Finance and trading.</p> <p>System automation and administration.</p> <p>Basic game development.</p> <p>Security and penetration testing.</p> <p>The COUNTLINES() function should display the output as:</p> <p>The number of lines which starts with s and ends with g : 2</p>	3
Ans)	<pre>def COUNTLINES():     f1=open("data.txt", "r")     lines=f1.readlines()     print("All Data of file in lines: \n",lines)     count=0     i=1     for line in lines:         i+=1         if line[0].upper()=='S': and line[-1].upper()=='E':             count+=1     print("The number of lines which starts with s and ends with g : ", count)     f1.close() COUNTLINES()</pre> <p>( ½ mark for correctly opening and closing the file</p> <p>½ for readlines()</p> <p>½ mark for correct loop</p> <p>½ for correct if statement</p> <p>½ mark for correctly incrementing count</p> <p>½ mark for displaying the correct output)</p>	

	OR	
	<p>Write a function COUNTMAX() to read data from a text file 'FILE.TXT', and display the word which has maximum number of vowels characters.</p> <p>Example:</p> <p>If the file content is as follows:</p> <p>There are two types of files that can be handled in Python, normal text files and binary files. Text files: In this type of file, Each line of text is terminated with a special character called EOL, which is the new line character in Python by default.</p> <p>The COUNTMAX() function should display the output as:</p> <p>Word with maximum number of vowels : terminated</p> <p>Maximum no of vowels: 4</p>	
Ans)	<pre>def COUNTMAX():     f1=open("FILE.txt","r")     s=f1.read()     countV=0     countC=0     words=s.split()     maxV=0     final=""     for word in words:         countV=0         for ch in word:             if ch.isalnum()==True:                 if ch in "aeiouAEIOU":                     countV+=1         if maxV&lt;countV:             maxV=countV             final=word     print("Word with maximum number of vowels : ",final,"\nMaximum     no of vowels: ",maxV)</pre>	

f1.close()  
COUNTMAX()

(½ mark for correctly opening and closing the file  
½ for read()  
½ mark for correct loops  
½ for correct if statement  
½ mark for correctly incrementing counts  
½ mark for displaying the correct output)

Note: Any other relevant and correct code may be marked

28

- a. Write the outputs of the SQL queries (i) to (iv) based on the relations Book and Member given below:

**TABLE : MEMBER**

MNO	MNAME	CODE	ISSUEDATE
M101	RAGHAV SINHA	L102	2016-10-13
M103	SARTHAK JOHN	F102	2017-02-23
M102	ANISHA KHAN	C101	2016-06-12

**TABLE:BOOK**

CODE	BNAME	TYPE	PRICE
F101	The Priest	Fiction	25
L102	German Easy	Literature	30
C101	Tarzan in the lost world	Comic	24
F102	Untold Story	Fiction	35
C102	War heroes	Comic	40

- i. SELECT A.CODE,BNAME,MNAME FROM BOOK A, MEMBER B WHERE A.CODE=B.CODE AND ISSUEDATE > “2016-12-30”;

A.CODE	BNAME	MNAME
F102	Untold Story	SARTHAK JOHN

( ½ mark for the correct output)

- ii. SELECT MAX(ISSUEDATE),SUM(PRICE) FROM BOOK A, MEMBER B WHERE A.CODE=B.CODE AND MNAME LIKE “%N”;

MAX(ISSUEDATE)	SUM(PRICE)
2017-02-23	59

( ½ mark for the correct output)

3

	<p>iii. SELECT DISTINCT TYPE FROM BOOK WHERE PRICE &gt;25 AND PRICE&lt;35;</p> <table><tr><td>DISTINCT TYPE</td></tr><tr><td>LITERATURE</td></tr></table> <p>( ½ mark for the correct output)</p>	DISTINCT TYPE	LITERATURE							
DISTINCT TYPE										
LITERATURE										
	<p>iv. SELECT MAX(PRICE),MIN(PRICE) FROM BOOK GROUP BY TYPE;</p> <table><tr><td>MAX(PRICE)</td><td>MIN(PRICE)</td></tr><tr><td>35</td><td>25</td></tr><tr><td>30</td><td>30</td></tr><tr><td>24</td><td>40</td></tr></table> <p>( ½ mark for the correct output)</p>	MAX(PRICE)	MIN(PRICE)	35	25	30	30	24	40	
MAX(PRICE)	MIN(PRICE)									
35	25									
30	30									
24	40									
	<p>b. Write the command to view the structure of table Book</p>									
Ans)	<p>Describe Book;</p> <p>( 1 mark for correct answer)</p>									
29	<p>Write a function MAKE_LIST(L) to return a new list L_NEW, in the following manner.</p> <p>While making the new list L_NEW, the elements having even values in L will be replaced with its half, and elements having odd values in L will be replaced with twice its value.</p> <p>Example:</p> <p>If the list L contains</p> <p>[3, 4, 5, 16, 9]</p> <p>Then the new list L_NEW should be displayed as</p> <p>[6, 2,10,8, 18]</p>	3								
Ans)	<pre>def MAKE_LIST(L):     L_NEW=[]     for i in range(len(L)):         if L[i] % 2 == 0:             L_NEW.append(L[i] // 2)         else:             L_NEW.append(L[i] * 2)     return (L_NEW)  L=[3, 4, 5, 16, 9] print(MAKE_LIST(L))</pre>									

	<p>(½ mark for correct function header 1 mark for correct loop 1 mark for correct if statement ½ mark for return statement)</p> <p><i>Note: Any other relevant and correct code may be marked</i></p>	
30	<p>Jiya has a list containing 8 integers. You need to help her create a program with two user defined functions to perform the following operations based on this list.</p> <ul style="list-style-type: none"> <li>• Traverse the content of the list and push those numbers into a stack, which are divisible by both 5 and 3.</li> <li>• Pop and display the contents of the stack.</li> </ul> <p>For example:</p> <p>If the sample content of the list is as follows:</p> <p>L=[5,15,21,30,45,50,60,75]</p> <p>Sample output of the code should be:</p> <p>75 60 45 30 15</p>	3
Ans)	<pre>def PUSH(Arr,value):     s=[]     for x in range(0,len(Arr)):         if Arr[x]%5 and Arr[x]%3==0:             s.append(Arr[x])     if len(s)==0:         print("Empty Stack")     else:         print(s)  def popStack(st) :     if len(st)==0: # If stack is empty         print("Underflow")     else:         print("Element deleted is",st.pop( ))</pre> <p>(1.5 marks for correct PUSH() and 1.5 marks for correct pop_Stack())</p>	
	OR	
	<p>Riya has created a dictionary containing Product names and prices as key value pairs of 4 products. Write a user defined function for the following:</p> <ul style="list-style-type: none"> <li>• PRODPUSH() which takes a list as stack and the above dictionary as the parameters.</li> </ul> <p>Push the keys (Pname of the product) of the dictionary into a stack, where the corresponding price of the products is less than 6000. Also write the statement to call the above function.</p>	



For example:

If Riya has created the dictionary is as follows:

Product={"TV":10000, "MOBILE":4500, "PC":12500, "FURNITURE":5500}

The output from the program should be:

['FURNITURE', 'MOBILE']

Ans) Product={"TV":10000, "MOBILE":4500, "PC":12500, "FURNITURE":5500}  
stack=[]  
def PRODPUSH(stack, P):  
 for k in Product:  
 if P[k]<6000:  
 stack.append(k)  
PRODPUSH(stack, Product)  
print(stack)

*(1 mark for correct function header*

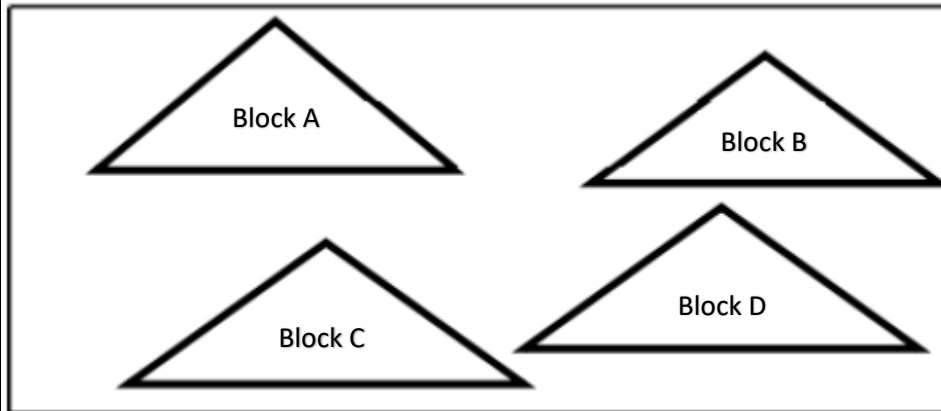
*1 mark for correct loop*

*½ mark for correct If statement*

*½ mark for correct function call)*

#### SECTION D

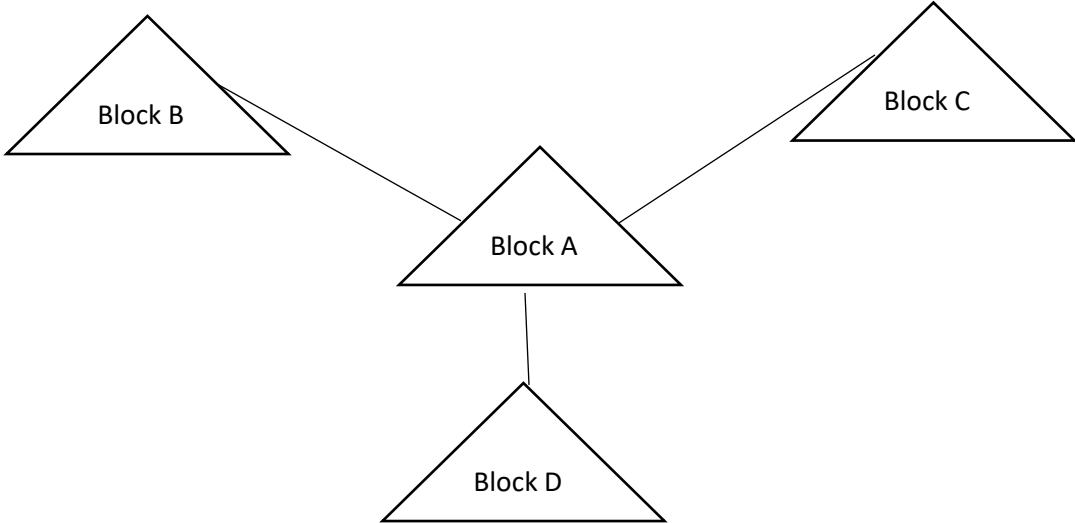
- 31 Alpha Pvt Ltd is setting up the network in Chennai. There are four blocks- Block A, Block B, Block C & Block D.



Distance between various blocks are as given below:

Block	Distance
Block A to Block B	75 m
Block A to Block C	170m
Block A to Block D	100m
Block B to Block C	120 m
Block B to Block D	130 m
Block C to Block D	50 m

Number of computers in each block are given below:

	<table><tr><th>Block</th><th>Number of Computers</th></tr><tr><td>Block A</td><td>85</td></tr><tr><td>Block B</td><td>28</td></tr><tr><td>Block C</td><td>43</td></tr><tr><td>Block D</td><td>20</td></tr></table>	Block	Number of Computers	Block A	85	Block B	28	Block C	43	Block D	20	
Block	Number of Computers											
Block A	85											
Block B	28											
Block C	43											
Block D	20											
	i. Suggest the most suitable block to place the server to get the best and effective connectivity, with a suitable reason.	1										
Ans)	Block A is the most appropriate to house the server as it has the maximum number of computers. (1/2 mark for naming the server block and ½ mark for correct reason.)											
	ii. Suggest and draw the cable layout to efficiently connect various blocks of buildings within the CHENNAI campus for connecting the digital devices. <div></div> (1 mark for layout )	1										
	iii. Suggest the placement of following devices with justification: (a) Switch/Hub (b) Repeater	1										
Ans)	Switch/hub will be placed in all blocks to have connectivity within the block. As per the layout suggested, repeaters can be used between blocks A and C(170 m), A and D(100 m) to regenerate the signals. ( 1 mark for correct answer)											

	iv. The organization is planning to link its front office situated in the city in a hilly region where cable connection is not possible. Suggest an economic way to connect with reasonably high speed.	1
Ans)	Radiowaves ( 1 mark for correct answer)	
	v. Which type of Network is formed between the four blocks?	1
Ans)	LAN(Local Area Network) ( 1 mark for correct answer)	
32	a. Write the output of the code given below:  <pre>def increment(n):     L=[1,2,3]     L.append([4])     return L L=[1,2,3] m=increment(L) print(L,m)</pre>	2+3
	[1, 2, 3] [1, 2, 3, [4]] (1 mark for each list)	
	<p>b. The code given below inserts the following record in the table Employee:</p> <p>ENo – integer          EName – string          Dept – string          Salary – integer</p> <p>Note the following to establish connectivity between Python and MYSQL:</p> <ul style="list-style-type: none"> <li>* Username is root</li> <li>* Password is tiger</li> <li>* The table exists in a MYSQL database named Company</li> <li>* The details (ENo, EName, Dept, Salary) are to be accepted from the user.</li> </ul> <p>Write the following missing statements to complete the code:</p> <p>Statement 1 – to form the cursor object          Statement 2 – to execute the command that inserts the record in the table Employee.          Statement 3- to add the record permanently in the database.</p> <pre>import mysql.connector as mysql  def sql_data():      con1=mysql.connect(host="localhost",user="root", password="tiger",         database="Company")</pre>	

	<pre> mycursor = _____ #Statement 1  eno=int(input("Enter Employee No :: "))  ename=input("Enter Name :: ")  dept=input("Enter Dept :: ")  salary=int(input("Enter Salary :: "))  query="insert into employee values({},'{}','{}',{})".format(eno,ename,dept,salary)  _____ #Statement 2  _____ # Statement 3  print("Data Added successfully") </pre>	
Ans)	<p>Statement 1 – Create cursor object con1.cursor() <i>(1 mark for correct statement)</i></p> <p>Statement 2 – to execute the command that inserts the record in the table Employee. mycursor.execute(query) <i>(1 mark for correct statement)</i></p> <p>Statement 3- to add the record permanently in the database. con1.commit() <i>(1 mark for correct statement)</i></p>	
	OR	
	<p>a. What will be the output of the following Python code?</p> <pre> val="bTeR%h2q8"  S=""  for x in range(len(val)):      if val[x].isdigit():          S=S+str(len(val))      elif val[x].islower():          S=S+val[x].upper()      elif val[x].isupper():          S=S+val[x].lower()      else:          S=S+"@@"  print(S) </pre>	
Ans)	<p>BtEr@@H9Q9</p> <p><i>(1 mark for first 5 characters, 1 mark for next 5 characters)</i></p>	

	<p>b. The code given below reads the following record from Table named Employee and display those records where salary <math>\geq 30000</math> and <math>\leq 90000</math>:</p> <p>Empno – integer  EName – string  Desig – integer  Salary – integer</p> <p>Note the following to establish connectivity between Python and MYSQL:</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Username is root</li> <li><input type="checkbox"/> Password is Password</li> <li><input type="checkbox"/> The table exists in a MYSQL database named Bank.</li> </ul> <p>Write the following missing statements to complete the code:</p> <p>Statement 1 – to form the cursor object</p> <p>Statement 2 – to execute the query that extracts records of those employees whose salary <math>\geq 30000</math> and <math>\leq 90000</math></p> <p>Statement 3- to read the complete result of the query (records whose salary is in the given range) into the object named data, from the table Employee in the database.</p> <pre> import mysql.connector mydb=mysql.connector.connect(host='localhost',user='root',passwd='Password',database='bank')  mycursor = _____ # statement1 mycursor._____ #statement 2 data= _____ # statement 3 for x in data:     print(x) </pre>	
Ans)	<p>statement 1 – mydb.cursor()</p> <p>statement 2 - mycursor.execute("select * from employee where salary<math>\geq</math>30000 and salary<math>\leq</math>90000")</p> <p>statement 3- mycursor.fetchall()</p> <p><i>(1 mark for each correct statement)</i></p>	

33	<p>In a csv file “Student.csv”, assuming that csv_reader is an object returned from csv.reader(), what would be printed to the console with each iteration in the code given below?</p> <pre>for item in csv_reader:     print(item)</pre> <ol style="list-style-type: none"> <li>The individual value data that is separated by the delimiter</li> <li>The row data as a list</li> <li>The column data as a list</li> <li>The full line of the file as a string</li> </ol>	5
	<p>The row data as a list.</p> <p><i>(1 mark for correct answer)</i></p>	
	<p>Neha is making a software on “Items &amp; their prices” in which various records are to be stored / retrieved in STORE.CSV data file. Each record consists of a list with field elements Item and Price. Write Python function definitions and calls for the following user defined functions.</p> <ol style="list-style-type: none"> <li>INSERT() – Add the data of an item to the CSV file</li> <li>DISPLAY() – Display the records present. Also show the number of records in the file.</li> </ol>	
Ans)	<pre>import csv def INSERT (Item, Price):     f=open(“STORE.CSV”, a)     fw=csv.writer(f)     fw.writerow([Item, Price])     f.close()  def DISPLAY():     cnt=0     with open(“STORE.CSV”,”r”) as NI:        NewItem=csv.reader(NI)         for rec in NewItem:             cnt+=1             print(rec[0], “#”, rec[1])     print(“No of records is “,cnt)  #main-code INSERT(“Sugar”, 38.00) DISPLAY()</pre> <p><i>(½ mark for importing csv module 1 ½ marks each for correct definitions of INSERT() and DISPLAY() ½ mark for function call statements )</i></p>	
	OR	
	Give any one point of difference between a binary file and a csv file.	

Ans)	<p>Binary file:</p> <ul style="list-style-type: none"> <li>• Extension is .dat</li> <li>• Not human readable</li> <li>• Stores data in the form of 0s and 1s</li> </ul> <p>CSV file</p> <ul style="list-style-type: none"> <li>• Extension is .csv</li> <li>• Human readable</li> <li>• Stores data like a text file</li> </ul> <p><i>(1 mark for any one difference)</i></p>	
	<p>Write a Program in Python that defines and calls the following user defined functions:</p> <p>i. add() – To accept and add data of a toystore to a CSV file ‘toydata.csv’. Each record consists of a list with field elements as tid, tname and tprice to store toy id, toy name and toy price respectively.</p> <p>ii. search()- To display the records of the toys whose price is more than 500.</p>	
Ans)	<pre>def add():     fout=open("toydata.csv","a",newline="\n")     wr=csv.writer(fout)     tid=int(input("Enter Toy Id :: "))     tname=input("Enter toy name :: ")     tprice=int(input("Enter toy price :: "))     TD=[tid,tname,tprice]     wr.writerow(TD)     fout.close() def search():     fin=open("toydata.csv","r",newline="\n")     data=csv.reader(fin)     found=False     print("The Details are: ")     for i in data:         if int(i[2])&gt;500:             found=True             print(i[0],i[1],i[2])     if found==False:         print("Record not found")     fin.close() add() print("Now displaying") search()</pre> <p><i>(½ mark for importing csv module)</i>  <i>1 ½ marks each for correct definition of add() and search()</i>  <i>½ mark for function call statements)</i></p>	
	SECTION E	
34	Table : HEALTHYDRINKS	1+1+ 2

Drinkcode	Dname	Price	Calories
101	Lime and Lemon	20.00	120
102	Apple Drink	18.00	120
103	Nature Nectar	15.00	115
104	Green Mango	15.00	140
105	Aam Panna	20.00	135
106	Mango Juice Bahar	12.00	150

Based on the data given, answer the following questions:

- i. Identify the most appropriate column, which can be considered as Primary key.

Ans: Drinkcode

*(1 mark for correct answer)*

- ii. If two columns are added and 2 rows are deleted from the table HEALTHYDRINKS , what will be the new degree and cardinality of the above table?

Ans:

New Degree: 6

New Cardinality: 4

*(1/2 mark for correct degree and ½ mark for correct cardinality)*

- iii. Write the statements to:

- a. Insert the following record into the table

DrinkCode – 107, Dname – Santara Special, Price – 25.00, Calories – 130

Ans. INSERT INTO HEALTHYDRINKS VALUES(107,"Santara Special",25.00,130);

- b. Increase the price of the juices by 3% whose name begins with 'A'.

Ans:

UPDATE HEALTHYDRINKS SET PRICE=PRICE + 3/100\*PRICE WHERE DNAME LIKE "A%";

*(1 mark for each correct statement)*

OR (Option for part iii only)

- iii. Write the statements to:

- a. Delete the record of those juices having calories more than 140.

Ans:

DELETE FROM HEALTHYDRINKS WHERE CALORIES > 140;



	b. Add a column Vitamins in the table with datatype as varchar with 20 characters.	
	<p>Ans.  ALTER TABLE HEALTHYDRINKS ADD Vitamins VARCHAR(20);</p> <p><i>(1 mark for each correct statement)</i></p>	
35	<p>As a Python expert, help Rehaan to complete the following code based on the requirement given:</p> <pre> import _____ #Statement 1 def update_data():     rec={}     fin=open("record.dat","rb")     fout=open("_____") #Statement 2     found=False     sid=int(input("Enter student id to update their marks :: "))     while True:         try:             rec=_____ #Statement 3             if rec["Student_id"]==sid:                 found=True                 rec["Marks"]=int(input("Enter new marks :: "))                 pickle._____ #Statement 4             else:                 pickle.dump(rec,fout)         except:             break     if found==True:         print("The mark of student id ",sid," has been updated.")     else:         print("No student with such id is found") fin.close() fout.close() </pre>	
	(i) Which module should be imported in the program? (Statement 1)	1
	(ii) Write the correct statement required to open a temporary file named temp.dat. (Statement 2)	1
	(iii) Which statement should Rehaan fill in Statement 3 to read the data from the binary file record.dat, and in Statement 4 to write the updated data in the file, temp.dat?	2
Ans)	<p>(i) pickle (1 mark for correct module)</p> <p>(ii) fout=open('temp.dat', 'wb') (1 mark for correct statement)</p> <p>(iii) pickle.load(fin)  pickle.dump(rec,fout)</p> <p><i>(1 mark for each correct statement)</i></p>	