



**COMMON PRE-BOARD EXAMINATION**  
**2022-23**  
**Subject: Computer Science - 083**



Class: XII

Maximum Marks:70

Time: 3 hours

**General Instructions:**

1. This question paper contains five sections, Section A to E.
2. All questions are compulsory.
3. Section A have 18 questions carrying 01 mark each.
4. Section B has 07 Very Short Answer type questions carrying 02 marks each.
5. Section C has 05 Short Answer type questions carrying 03 marks each.
6. Section D has 03 Long Answer type questions carrying 05 marks each.
7. Section E has 02 questions carrying 04 marks each. One internal choice is given in Q35 against part c only.
8. All programming questions are to be answered using Python Language only.

Qn No.	SECTION A	Marks
1.	"break and continue statements are conditional statements". True or False ?	1
2.	Which of the following are not valid keywords? a. False b. Math c. WHILE d. break	1
3.	Consider two lists L1= [ 2,4,6] and L2=[ 6,7,8] What will be the output after the following code is executed? L1=[ 2,4,6] L2=[ 6,7,8] L1 = L2 L2.append(5) print(L1)  a. [2,4,6,5] b. [6,7,8,5] c. [6,7,8] d. [2,4,6]	1
4.	Which of the following are valid identifiers ? a. price2    b. %sales%    c) Else    d. unit price	1

5	<p>Look at the following and determine the output .</p> <pre>S="Work hard" print(S[1:-1])</pre> <p>a. 'rah dro' b. 'work har' c. 'ork har' d. 'drah droW'</p>	1
6	<p>Which of the following commands can be used to read the entire contents of a file as a string using the file object &lt;tmpfile&gt;?</p> <p>(a) tmpfile.read(n) (b) tmpfile.read() (c) tmpfile.readline() (d) tmpfile.readlines()</p>	1
7.	<p>_____ is a table constraint that will prevent the entry of duplicate rows.</p> <p>a. Primary Key b. NULL c. Unique d. Distinct</p>	1
8.	<p>Which statement is appropriate to change the first name "Madhur" to "Mridul" in the "FName" column in the 'Student' table?</p> <p>a. UPDATE Student SET FName='Mridul' WHERE FName='Madhur'; b. MODIFY Student SET FName='Madhur' INTO FName='Mridul' ; c. UPDATE Student SET FName='Madhur' INTO FName='Mridul' ; d. UPDATE Student SET FName='Madhur' WHERE FName='Mridul';</p>	1
9.	<p>Which of the following will return a type error in Python ?</p> <p>a. print('5' * 3) b. print('5' + '3') c. print('5' + 3) d. print(5 * 3)</p>	1
10	<p>Amal wants to change the datatype of the attribute UNITS in the table PHARMA. Which of the following commands will he use for the purpose?</p> <p>a. MODIFY TABLE b. UPDATE TABLE c. CHANGE TABLE d. ALTER TABLE</p>	1
11	<p>Which of the following is not a valid mode of opening a file?</p> <p>a. ab    b. rw    c. r+    d. w+</p>	1
12	<p>Data type of "name" field in a table is char(25). How many bytes will be occupied by the value "Rohan Kumar"?</p>	1

	a. 25 b. 11 c. 10 d. 15	
13	In this technique, there is a dedicated link between the sender and the receiver. a. Packet switching b. Circuit Switching c. Message Switching d. None of the above	1
14	What will be the output of the following expression? <pre>print( 95//3**2**2+12-3%2)</pre> a. 12 b. 14 c. 11 d. 10	1
15	All aggregate functions except_____ ignore null values in their input collection. a. sum( ) b. count(*) c. count(attribute) d. avg( )	1
16	What will be the data type of D in the following statement where Mycursor is the defined cursor object. <pre>D=Mycursor.fetchmany(1)</pre> a. Tuple b. List of lists c. List of tuple d. Tuple of lists	1
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): Parameters with default arguments can be followed by parameters with no default argument. Reason (R): Syntactically, it would be impossible for the interpreter to decide which values match which arguments if mixed modes were allowed while providing default arguments.	1
18	Assertion(A): Pickling refers to the process of converting the structure to a byte stream before writing to a binary file.	1

	Reasoning(R): Unpickling refers to the reverse process that is to convert byte stream is converted to original structure.	
	<b>SECTION B</b>	
19	<p>Rewrite the following code after removing syntax error:</p> <pre>Runs = ( 10, 5, 0, 2, 4, 3 ) for I in Runs     if I=0:         print(Maiden Over)     else:         print(Not Maiden)</pre>	2
20	<p>Give two advantages and two disadvantages of Radio wave.</p> <p style="text-align: center;">OR</p> <p>Define the following terms:</p> <p>i)Modem   ii)Bluetooth</p>	2
21	<p>a) What will be the output of the following python code?</p> <pre>S="UVW" L=[10,20,30] D={ } N=len(S) for I in range(N):     D[L[I]]=S[I] for K,V in D.items():     print(K, V, sep='*', end = ', ')</pre> <p>b) Predict the output of the Python code given below:</p> <pre>t1=(10,20,"book",30,9.5,"item",[12,13],(3,4),30,5,30) print( t1.index(30)*t1.count(30)) print(t1[-8:-4])</pre>	2
22	Explain primary key and foreign key with examples	2
23	<p>a. Write down the full form of :</p> <p style="text-align: center;">i.VoIP   ii. POP</p> <p>b. Which is the protocol that allows the use of HTML on the World Wide Web ?</p>	2
24	a. What possible output(s) are expected to be displayed on screen at the time of execution of the program from the following code?	2

```
import random
ar = [2, 3, 4, 5, 6, 7]
minn = random.randint (1, 3)
maxn = random.randint (2, 4)
for i in range (minn, maxn + 1):
    print (ar [i], end = `#`)
```

(a) 3# 4# 5#      (b) 5# 6# 7#    (c) 1# 4# 7#    (d) 4# 5# 7#

OR

b)

Consider the following table EMPLOYEE in a Database COMPANY :

Table : EMPLOYEE

E_ID	NAME	DEPT
A1001	Akash	Accounts
A1002	Rakesh	HR
A1003	Alina	Accounts
A1004	Simon	Sales
A1005	Poonam	Accounts

Assume that the required library for establishing the connection between Python and MySQL is already imported in the given Python code. Also assume that DB is the name of the database connection for the given table EMPLOYEE stored in the database COMPANY. Predict the output of the following Python code :

```
CUR=DB.cursor()
```

```
CUR.execute("USE COMPANY")
```

```
CUR.execute("SELECT * FROM EMPLOYEE WHERE DEPT =
                                                    'Accounts' ")
```

```
Rec=CUR.fetchmany(1)
```

```
for i in range(2) :
```

```
    R=CUR.fetchone()
```

```
    print(R[0], R[1], sep = " @ ")
```

25      Differentiate ALTER and UPDATE commands in SQL with an example.

OR

Write the difference between WHERE and HAVING clause in SQL?  
Explain with examples.

2

**SECTION C**

- 26 i) Observe the following tables, DOCTOR and PATIENT carefully and write the output of the following query:  
Table: DOCTOR

DNO	DNAME	FEES
D1	FATHIMA	2500
D2	SHYAM	1500
D3	RAHUL	3500

TABLE: PATIENT

PNO	PNAME	AD_DATE	DNO
P1	ZAHA	2022-09-10	D1
P2	KIRAN	2022-05-23	D2

SELECT DNAME,PNAME,FEES FROM DOCTOR , PATIENT;

- ii) Write the output of queries(a) to (d) based on the table, PERIPHERALS given below.

Table: PERIPHERALS

PID	NAME	BRAND	DOP	COST	DISCOUNT
K001	WIRELESS KEYBOARD	LOGITECH	2022-01-12	1200	5
M001	OPTICAL MOUSE	INDEX	2022-01-05	450	0
H001	EXTERNAL HDD	SEAGATE	2022-01-10	4200	10
K002	KEYBOARD	INDEX	2022-01-15	350	3
P001	LASER PRINTER	HP	2022-01-13	9500	8
S001	SCANNER	CANON	2022-01-12	3500	4
P002	INKJET PRINTER	CANON	2021-12-24	6500	5

- (a) SELECT AVG(COST) FROM PERIPHERALS WHERE COST >= 3000;  
(b) SELECT MAX(DOP), MIN(DOP) FROM PERIPHERALS;  
(c) SELECT COST - COST\*DISCOUNT/100 'NET\_COST' FROM PERIPHERALS WHERE PID LIKE 'P%';  
(d) SELECT NAME, COST FROM PERIPHERALS WHERE DOP LIKE '%-01-%' AND DISCOUNT IN (5,10);

- 27 Write the definition of a function ChangeGender() in Python, which reads the contents of a text file "ARTICLE1.TXT" and copy the content of the file to ARTICLE2.TXT with every occurrence of the word 'he'

replaced by 'she'. For example, if the content of the file "ARTICLE1.TXT" is as follows :

Last time he went to Agra, there was too much crowd, which he did not like. So this time he decided to visit some hill station.

The file ARTICLE2.TXT should contain :

Last time she went to Agra, there was too much crowd, which she did not like. So this time she decided to visit some hill station.

OR

Write a function Replace\_Space() in Python which should read each character of a text file "MYFILE.TXT" and then replace all spaces from text with hash (#).

Example:

If the file content is as follows:

The relative paths are relative to current working directory.

The Replace\_Space() function should display the output as:

The#relative#paths#are#relative#to#current#working#directory.

- 28 Write the outputs of the SQL queries (i) to (iv) based on the given below tables: TRAINER and COURSE

2+1

**Table : TRAINER**

TID	TNAME	CITY	HIREDATE	SALARY
101	SUNAINA	MUMBAI	2000-10-15	90000
102	ANAMIKA	DELHI	1996-12-24	80000
103	DEEPTI	CHANDIGARH	2003-12-21	82000
104	MEENAKSHI	DELHI	2004-12-25	78000
105	RICHA	MUMBAI	1998-01-12	95000
106	MANIPRABHA	CHENNAI	2003-12-12	68000

**Table : COURSE**

CID	CNAME	FEES	STARTDATE	TID
C201	AGDCA	12000	2020-07-12	101
C202	ADCA	15000	2020-07-15	103
C203	DCA	10000	2020-10-01	102
C204	DDTP	9000	2020-09-15	104
C205	DHN	20000	2020-08-01	101
C206	O LEVEL	18000	2020-07-25	105

	<p>i. SELECT COUNT(DISTINCT(CITY)) FROM TRAINER WHERE SALARY &gt; 80000;</p> <p>ii. SELECT TID, MIN(FEES) FROM COURSE GROUP BY TID HAVING COUNT (*) &gt;1;</p> <p>iii. SELECT COUNT(TNAME) FROM TRAINER WHERE TNAME LIKE "%NA%";</p> <p>iv. SELECT T. TNAME, T. TCITY, C. CNAME, C. FEES FROM TRAINER T, COURSE C WHERE T.TID = C.TID AND T. SALARY &gt; 80000 AND C. CNAME NOT LIKE "%DCA%";</p> <p>b. Which command is used to show the information like name of fields, data types and other information about a table?</p>																					
29	<p>Write the definition of a function AddPrev(A, N) in Python, which should add every value of list A to the next value and assign the sum at the index of the next value. The list A contains N number of integers. The function should finally display the entire content of the changed list. Example : If the list A contains the following 10 elements (i.e. for N=10).</p> <table><tr><td>0</td><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td><td>8</td><td>9</td></tr><tr><td>9</td><td>5</td><td>15</td><td>10</td><td>25</td><td>12</td><td>5</td><td>9</td><td>5</td><td>12</td></tr></table> <p>Then the function should display the output as follows : 9 # 14 # 29 # 39 # 64 # 76 # 81 # 90 # 95 # 107 #</p>	0	1	2	3	4	5	6	7	8	9	9	5	15	10	25	12	5	9	5	12	3
0	1	2	3	4	5	6	7	8	9													
9	5	15	10	25	12	5	9	5	12													
30	<p>Sanjay has created a dictionary product containing ProdName and Price as the Key – Value pair of 7 Products. Write a program with separate user defined function to perform the following operations:</p> <ul style="list-style-type: none"><li>• Push the Keys (ProdName) of the dictionary into a Stack, where corresponding Price range is 5000-25000 (inclusive of both values).</li><li>• Pop and display the content of Stack. Also, display "Stack Empty" when there are no elements in the stack.</li></ul> <p>For example if the content of Dictionary is as follows: Product={"TV":20000,"Mobile":19999,"Camera":4999, "Printer":5999,"Mouse":499, "Keyboard":600, "AC":25000}</p> <p>The output of the program should be : AC Printer Mobile TV Stack Empty</p> <p>OR</p>	3																				



Write separate user defined functions for the following :

(i) PUSH(N): This function accepts a list of names, N as parameter. It then pushes only those names in the stack named WITHS which contain the letter 'S'.

(ii) POPS( ): This function pops each name from the stack WITHS and displays it. When the stack is empty, the message "STACK EMPTY" is displayed.

For example :

If the names in the list N are

['AMBIKA', 'SATISH', 'RANDHIR', 'WILLIAMS', 'TASNEEN']

Then the stack WITHS should store

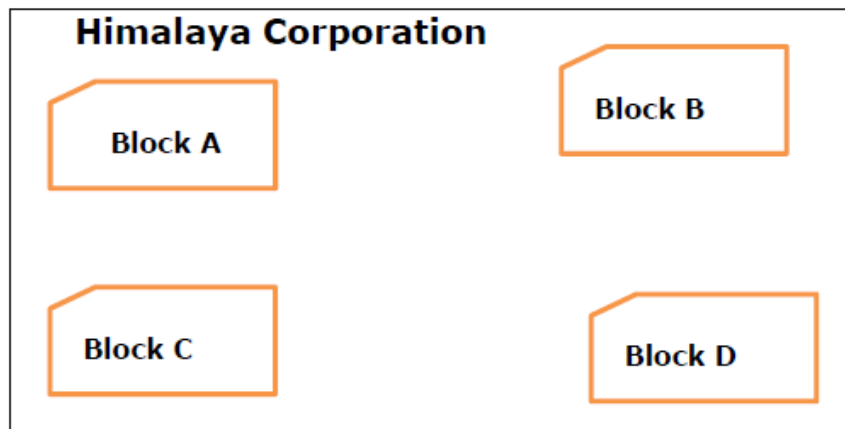
['SATISH', 'WILLIAMS', 'TASNEEN']

And the output should be displayed as

TASNEEN WILLIAMS SATISH STACK EMPTY

## SECTION D

- 31 Himalaya Corporation has set up its new center at New Delhi for its office and web based activities. It has 4 blocks of buildings



Distance between the various blocks is as follows:

A to B 40 m  
 B to C 120m  
 C to D 100m  
 A to D 170m  
 B to D 60m  
 A to C 55m

	<p>Numbers of computers in each block</p> <p>Block A - 25 Block B - 50 Block C - 125 Block D - 10</p> <p>i) Suggest the suitable cable layout to connect all the buildings . ii) Which is the suitable block to place the server. Justify your answer? iii) Suggest the placement of the following device with justification i. Repeater ii. Hub/Switch iv) What is the type of network(LAN/MAN/WAN) when the New Delhi office is connected to the Mumbai office ? v) What is the highspeed wireless connection to connect the New Delhi office with Mumbai office?</p>	<p>1 1 1 1 1</p>
32	<p>(a)</p> <pre> value = 50 def display(N):     value = 25     if N%7==0:         value = value + N     else:         value = value - N     print(value, end='#')  print(value) display(20) print(value) </pre> <p>(b) The code given below updates the following record in the table book</p> <pre> bookno – int bname – string author – string price – integer </pre> <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 mysql</li> <li>• The table exists in a MYSQL database named library.</li> </ul> <p>Write the following missing statements to complete the code:</p> <p>Statement 1 – to form the cursor object Statement 2 – to increase the price of those books by 500 whose bookno is entered by the user. Statement 3 - To execute the SQL statement.</p> <pre> import mysql.connector as mysql def del_data(): </pre>	2+3

```

con1=mysql.connect(host="localhost",user="root",
                    password="mysql", database="library")
mycursor= _____ #Statement 1
bno =input("Enter bookno : ")
q=" _____ " #Statement 2
_____ # Statement 3
con1.commit()
print("Data updated successfully")

```

OR

a.

```

Text1="PReBOArDExAM2022"
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)

```

(b) The code given below reads the following record from the table named coach and displays only those records of swimming coaches .

```

coachid – int
name – string
game – string
fee – integer

```

Note the following to establish connectivity between Python and MYSQL:

- Username is root
- Password is mysql
- The table exists in a MYSQL database named club.

Write the following missing statements to complete the code:

Statement 1 – to form the cursor object.

Statement 2 – to execute the query that extracts records of those coaches who are coaching swimming.

	<p>Statement 3- to read the complete result of the query (records of swimming coaches) into the object named d, from the table coach in the database.</p> <pre> import mysql.connector as mysql def disp_data():     con1=mysql.connect(host="localhost",user="root",                         password="mysql", database="club")     mycursor= _____ #Statement 1     _____ #Statement 2     d= _____ #Statement 3     for i in d:         print(i)     mycursor.close() </pre>	
33	<p>What is the difference between text file and binary file?</p> <p>Write a Program in Python that defines and calls the following user defined functions:</p> <p>(i) ADD_SCORE() – To accept and add information about an exam into a csv file named 'exam.csv'. Each record consists of rollno, name , subject and score to store roll no , student name , subject and score of the exam .</p> <p>(ii) DISPLAY_SCORE() – To display the name of the students who scored more than 80 marks , present in the CSV file named 'exam.csv'.</p> <p style="text-align: center;">OR</p> <p>What are the possible parameters that can be passed while opening a csv file?</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 an item to a CSV file 'stock.csv'. Each record consists of a list with elements as id, itname and price.</p> <p>ii) search()- To display the records of the items whose price is less than 10000.</p>	5
<b>SECTION E</b>		

34	<p>Consider the table LIBRARY given below :</p> <table><tr><th>CDNO</th><th>NAME</th><th>QTY</th><th>PRICE</th></tr><tr><td>10001</td><td>Indian Patriotic</td><td>20</td><td>150</td></tr><tr><td>10004</td><td>Hanuman Chalisa</td><td>15</td><td>80</td></tr><tr><td>10005</td><td>Instrumental of Kishore</td><td>25</td><td>95</td></tr><tr><td>10003</td><td>Work Hard</td><td>18</td><td>125</td></tr><tr><td>10006</td><td>Devotional Krishna Songs</td><td>14</td><td>75</td></tr><tr><td>10002</td><td>Best Birthday Songs</td><td>17</td><td>NULL</td></tr></table> <p>Based on the data given above answer the following questions:</p> <p>i. Write the Degree &amp; Cardinality of the relation LIBRARY, if we remove 1 row and add 3 more columns.</p> <p>ii. Decrease the Price of "Work Hard" by 25.</p> <p>iii. Write the statements to :</p> <p>a. Add primary key constraint to cdno column.</p> <p>b. Insert the following record in the above relation: CDNO = 10015 NAME = "Devotional Songs"</p> <p style="text-align: center;">OR ( Option for part iii only)</p> <p>iii. Write the statement to:</p> <p>a. Delete the details of CDs with name having the word "songs" .</p> <p>b. Change all Nulls to 100 in the price column.</p>	CDNO	NAME	QTY	PRICE	10001	Indian Patriotic	20	150	10004	Hanuman Chalisa	15	80	10005	Instrumental of Kishore	25	95	10003	Work Hard	18	125	10006	Devotional Krishna Songs	14	75	10002	Best Birthday Songs	17	NULL	1+1+2
CDNO	NAME	QTY	PRICE																											
10001	Indian Patriotic	20	150																											
10004	Hanuman Chalisa	15	80																											
10005	Instrumental of Kishore	25	95																											
10003	Work Hard	18	125																											
10006	Devotional Krishna Songs	14	75																											
10002	Best Birthday Songs	17	NULL																											
35	<p>Rahim has written a code and created a binary file result.dat with sno, stname , subject and score. The file contains 10 records. He now has to update a record based on the sno entered by the user and update the score with new score. If the sno is not found, an appropriate message should to be displayed. As a Python expert, help him to complete the following code based on the requirement given above:</p> <pre>import _____ #Statement 1 def update_data():     fin=open("result.dat","-----") #Statement 2     found=False     sno=int(input("Enter student no. to update their score : "))     while True:         try:             pos=fin.tell()</pre>																													

	<pre> rec=_____ #Statement 3 if rec[0]==sno:     found=True     rec[3]=int(input("Enter new score: "))     _____ #Statement 4     pickle.dump(rec,fin) except:     break if found==True:     print("The score has been updated.") else:     print("No student with such id is not found") fin.close() </pre>	
(i)	Which module should be imported in the program? (Statement1)	1
(ii)	Write the correct statement required to open a result.dat.(Statement 2)	1
(iii)	Which statement should Rahim fill in Statement 3 to read the data from the binary file, result.dat and in Statement 4 to move the pointer to the beginning of the record to update data in the file, result.dat?	2