**PREBOARD2 PAPER(2022-23)**

**CLASS-XII**

**SUBJECT: COMPUTER SCIENCE**

**TIME: 3 HOURS M.M.: 70**

**General Instructions:**

1. This question paper contains five sections, Section A to E.

2. All questions are compulsory.

3. Section A has 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 Q34 against part c only.

8. All programming questions are to be answered using Python Language only.

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**SECTION A**

Q01. State True or False [1]

“Tuple is datatype in Python which contain data in key-value pair”

Ans False

Q02. Which of the following is not a keyword? [1]

1. eval (b) type (c) local (d)pass

and (c)

Q03. Given the following dictionaries [1]

dict\_student={“rno”: ”53”, “name” : “rajveer singh”}

dict\_marks={“accts” :87 , “English” : 65}

which statement will merge the contents of both dictionaries?

1. dict\_student + dict\_marks (c) dict\_student. add(dict\_marks)
2. dict\_student. merge(dict\_marks) (d) dict\_student. update(dict\_marks)

Ans (d)

Q04. Consider the given expression : [1]

not (( True and False ) or True)

which of the following will be correct output if the given expression is evaluated?

1. True (b) False (c) None (d) NULL

Ans (b)

Q05. Select the correct output of the code: [1]

>>> s=’mail2ap@apsdk.co.in

>>>s=s.split(‘ap’)

>>>op = s[0] + ‘@ap’ +s[2]

>>>print(op)

1. mail2@apsdk (b) mail2@dk (c) mail2@apsdk.co.in (d) mail2apsdk.co.in

ans (c)

Q06. Which function is used to close a file in Python? [1]

1. close() (b) cloose() (c) Close() (d) close

Ans (a)

Q07. Fill in the blank: \_\_\_\_\_\_\_\_\_\_\_\_command is used to change the table structure in SQL. [1]

1. update (b) change (c) alter (d) modify

Ans (c)

Q08.Which of the following commands will remove the entire database from MYSQL. [1]

1. Delete database (b) drop database (c) remove database (d) alter database

Ans (b)

Q09.Which of the following statement(s) would give an error after executing the following code. [1]

D={ “rno” :32 , “name” : “Ms Archana “ , “subject” : [‘chem”,”English” ,”cs”] , “marks”: (85,75,89) } #s1

print(D) #s2

D[‘subject’][2]= ‘maths’ #s3

D[“marks”][2]=80 #s4

print(D) #s5

1. s1 (b) s3 (c) s4 (d) s3 and s4

Ans (c)

Q10. Fill in the blank: \_\_\_\_\_\_\_\_\_is a non key attribute whose values are derived from the primary key of some other table. [1]

1. Primary key (b) candidate key (c) alternate key (d) foreign key

Ans (d)

Q11 The correct syntax of seek is : [1]

1. seek(offset [,reference\_point]) (c) seek(offset, file\_object)
2. seek.file\_object(offset) (d) file\_object.seek(offset [,reference\_point])

Ans (d)

Q12 Fill in the blank: [1]

The select statement when combined with \_\_\_\_clause ,returns records without repetition.

1. DISTINCT (b) DESCRIBE (c) UNIQUE (d) NULL

Ans (a)

Q13 Fill in the blank: \_\_\_\_\_\_\_\_ is a communication methodology designed to deliver both voice and multimedia communications over internet protocol. [1]

1. SMTP (b) VoIP (c) PPP (d) HTTP Ans (b)

Q14 What will the following expression be evaluated to in Python? [1]

print( round(100.0 /4 + (3+2.55),1 ))

1. 30.0 (b) 30.55 (c) 30.6 (d) 31

Ans (c)

Q15. Which function is used to display the total number of records from a table in a database.

1. total() (b) total(\*) (c)return(\*) (d) count(\*) [1]

Ans (d)

Q16.In order to open a connection with MySQL database from within Python using mysql.connector package, \_\_\_\_\_\_\_function is used. [1]

1. open() (b) connect (c) database() (d) connectdb()

Ans (b)

     Q17and Q18 are assertion and reasoning based questions. Mark the correct choice as

1. Both A and B are true and R is the correct explanation for A.
2. Both A and R are true and R is not the correct explanation for A.
3. A is true and R is False.
4. A is false and R is true.

Q17 str1=”class”+”work” [1]

Assertion(A) : value of str1 will be “classwork”

Reasoning(R) : operator ‘+’ adds the operands,if both are numbers &  concatenates the string if both operands are strings.

Ans (a)

Q18. Assertion(A) : CSV (comma separated values) is a file format for data storage which looks like a text file.

Reason (R) :The information is organized with one record on each line and each field is separated by semicolon. [1]

Ans (c)

**SECTION B**

Q19. Vivek has written a code to input a number and check whether it is even or odd number. His code is having errors. Rewrite the correct code and underline the corrections made [2]

Def checkNumber(N):

status=N%2

return

#main code

num=int(input(“enter a number to check :))

k=checkNumber(num)

if k = 0 :

print(“this is Even number”)

else:

print(“this is ODD number”)

Q20. Write two points of difference Bus topology and Star topology. [2]

**OR**

Write two points of difference between XML and HTML.

Ans The star topology utilises the switch or central hub for broadcasting data and info to all the devices present in a network. On the other hand, the bus topology utilises just a single cable that connects all the peripheral devices

XML (Extensible Markup Language) is **a markup language similar to HTML, but without predefined tags to use**. Instead, you define your own tags designed specifically for your needs.

Q21.(A) Given is a Python string declaration: [1]

message = ‘ firstPreBoardExam@2022-23 ‘

Write the output of : print(message [ : : -3].upper())

       Ans '322ADORSF'

 (B) Write the output of the code given below: [1]

d1={ ‘rno’ : 25 , ‘name’ : ‘dipanshu’ }

d2={ ‘name’ : ‘himanshu ‘ , ‘age’ : 30 , ‘dept’ : ‘mechanical’ }

d2.update(d1)

print(d2.keys())

Ans dict\_keys(['name', 'age', 'dept', 'rno'])

Q22.Explain the use of  ‘ Foreign Key ‘ in a Relational Database Management System. Give example to support your answer. [2]

Ans foreign key is a primary key but in another table.

Emp (empno, ename,job,deptno) dept (deptno dname loc)

In emp table deptno is foreign key

Q23. (A) Write the full forms of the following: [1]

(i) HTTP (ii) FTP

        (B) What is the use of TELNET ? [1]

Ans (A) HTTP- hyper text markup language

FTP-file transfer protocol

(B) it is used to connect remote located system

Q24. Predict the output of the Python code given below: [2]

data = [ “L”, 20 , “M”, 40 , “N” , 60 ]

times=0

alpha=” “

add=0

for  c in range(1,6,2):

times= times+c

alpha =alpha + data [c-1] + ‘@’

add= add + data [c]

print(times, add , alpha)

Ans 9 120 L@M@N@

**OR**

           Predict the output of the Python code given below:

a=[1,2,3,4,5]

dst=[ ]

for  j in range( len(a)):

if  j  % 2==1:

t=( a[ j ] , a [ j ] \*\*2 )

dst.append(t)

print(dst)

Ans [(2, 4), (4, 16)]

Q25 Differentiate between order by and group by clause in SQL with appropriate example.[2]

Ans **The Group By clause is used to group data based on the same value in a specific column.** The ORDER BY clause, on the other hand, sorts the result and shows it in ascending or descending order.

**OR**

       Categorize the following commands as DDL and DML.

INSERT , UPDATE , ALTER, DROP

Ans DDL- alter , drop. DML- insert,update

**SECTION C**

Q26 Write the output of the queries (i) to (vI) based on the table given below: [3]

TABLE : CHIPS

|  |  |  |  |
| --- | --- | --- | --- |
| BRAND\_NAME | FLAVOUR | PRICE | QUANTITY |
| LAYS | ONION | 10 | 5 |
| LAYS | TOMATO | 20 | 12 |
| UNCLE CHIPS | SPICY | 12 | 10 |
| UNCLE CHIPS | PUDINA | 10 | 12 |
| HALDIRAM | SALTY | 10 | 20 |
| HALDIRAM | TOMATO | 25 | 30 |

(i) Select BRAND\_NAME, FLAVOUR from CHIPS where PRICE <> 10;

Ans(i) Brand\_name flavor

Lays Onion

Lays tomato

Uncle chips pudina

Haldiram salty

Haldiram tomato

(ii) Select \* from chips where flavour = “tomato” and price >20;

Ans(ii) brand\_name flavor price quantity

Haldiram tomato 25 30

(iii) select brand\_name from chips where price > 15 and quantity <15;

Ans (iii) brand\_name

lays

(iv) select count( distinct brand\_name) from chips;

Ans(iv) 3

(v) select price, price\*1.5 from chips where flavour=”pudina”

Ans (v) price price\*1.5

10 15

(vi) select distinct (brand\_name) from chips order by brand\_name desc;

Ans (vi) distinct (brand\_name)

Lays

Uncle chips

haldiram

Q27 Write a function countINDIA() which read a text file ‘myfile.txt’ and print the frequency of the words ‘India’ in it(ignore case of the word). [3]

Example `; if the file content is as follows:

INDIA is my country. I live in India. India has many states.

The countIndia() function should display the output as : frequency of India is 3

Ans def countINDIA():

F=open(‘myfile.txt’)

G=F.read()

for I in G.lower():

if I ==’india’:

c=c+1

print(‘frequency of India is”,c)

F.close()

OR

Write a function countVowel() in python which read each character of a text file ‘myfile.txt’ and then count and display the count of occurrence of vowels (including small cases and upper case)

Example `; if the file content is as follows:

INDIA is my country. I live in India. India has many states.

 The countVowel() function should display the output as :Total number of vowels are: 20

Ans

def countVowel():

F=open(‘myfile.txt’)

G=F.read()

for I in G:

if I in ‘aeiouAEIOU’:

c=c+1

print(‘total number of vowels are”,c)

F.close()

Q28 (A) Consider the following tables BOOKS and ISSUED in a database named ‘LIBRARY’. Write SQL commands for the statements (i) to (iv). [2]

TABLE : BOOKS

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| BID | BNAME | AUNAME | PRICE | TYPE | QTY |
| COMP11 | LET US C | YASHWANT | 350 | COMPUTER | 15 |
| GEOG33 | INDIA MAP | RANJEET P | 150 | GEOGRAPHY | 20 |
| HIST66 | HISTORY | R BALA | 210 | HISTORY | 25 |
| COMP12 | MY FIRST C | VINOD DUA | 330 | COMPUTER | 18 |
| LITR88 | MY DREAMS | AVIND AD | 470 | NOBEL | 24 |

TABLE:ISSUED

|  |  |
| --- | --- |
| BID | QTY\_ISSUED |
| HIST66 | 10 |
| COMP11 | 5 |
| LITR88 | 15 |

(i) Display book name and author name and price of computer type books.

Ans(i) select bname,auname,price from books where type=’computer’;

(ii) To increase the price of all history books by Rs 50.

Ans(ii) update books set price=price+50 where type=’history’;

(iii) Show the details of all books in ascending order of their prices.

Ans(iii) select \* from books order by price;

(iv) to display book id, book name and quantity issued for all books which have been issued.

Ans(iv)select bid,bname,qty\_issued from books,issued where books.bid=issued.bid;

(B)Write the command to view all tables in a database. [1]

Ans (B) show tables;

Q29. Write a function lenFOURword(L), where L is the list of elements (list of words) passed as argument to the function. The function returns another list named ‘indexList’ that stores the indices of all four lettered of L. [3]

For example if L contains [‘dinesh’ , ‘ramesh’ , ‘aman’ ,’suresh’, ‘karn’]

The indexList will have [2,4]

Ans

indexList=[]

def lenFOURword(L):

for I in range(len(L)):

if len(L[I])==4:

indexList.append(I)

return indexList

L=['dinesh' , 'ramesh' , 'aman' ,'suresh', 'karn']

print(lenFOURword(L))

Q30. A list contains following record of student: [3]

[studentName, Class,  Section, MobileNumber ]

Write the following user defined functions to perform given operations on the stack named ‘xiia’: (i) pushElement() - to push an object containing name and mobile number of students who belong to class XII and section ‘a’ to the stack.

(ii) popElement()- to Pop the objects from the stack and display them . Also, display ‘Stack Empty ‘ when there are no elements in the stack.

For example

If the lists of student details are:

['rajveer' , '999999999', 'xi' ,'b']

['swatantra' , '888888888', 'xii' ,'a']

['sajal' ,'7777777777', 'vii' ,'a']

['yash' , '101010101010','xii' ,'a']

The stack ‘xiia’ should contain

[‘swatantra , ‘888888888’,  ‘xii ‘ ,’a’]

[‘yash’ , ‘101010101010’,  ‘xii ‘ ,’a’]

The output should be

[‘yash’ , ‘101010101010’,  ‘xii ‘ ,’a’]

[‘swatantra , ‘888888888’,  ‘xii ‘ ,’a’]

Stack empty

Ans

L=[['rajveer' , '999999999', 'xi' ,'b'],

['swatantra' , '888888888', 'xii' ,'a'],

['sajal' ,'7777777777', 'vii' ,'a'],

['yash' , '101010101010','xii' ,'a']]

xiia=[]

def pushElement():

for i in L:

if i[2]=='xii' and i[3]=='a':

xiia.append([i[0],i[1]])

def popElement():

if xiia==[]:

print("stack empty")

else:

print(xiia.pop())

pushElement()

popElement()

popElement()

popElement()

**OR**

Write a function in Python, Push(SItem) where , Sitem is a dictionary containing the details of stationary items-{sname:price}

The function should push the names of those items in the stack who have price greater than 25. Also display the count of elements pushed into the stack.

For example:

If the dictionary contains the following data

ditem={‘rubber ‘ : 5 , “pencil “ : 5, ‘pen’ : 30 , ‘ notebook’ : 60 ,’eraser’ : 5 ,’watch’ : 250 }

The stack should contain

pen

notebook

watch

The output should be

The count of elements in the stack is 3

Ans

ditem={'rubber' : 5 , 'pencil' : 5, 'pen' : 30 , 'notebook' : 60 ,'eraser' : 5 ,'watch' : 250 }

st=[]

def Push(Sitem):

c=0

for i in Sitem:

if Sitem[i]>25:

st.append(i)

c=c+1

print(st)

print('count of element in the stack are',c)

Push(ditem)

**SECTION D**

Q31 Aryan infotech solutions has set up its new center at kamla Nagar for its office and web based activities . The company compound has 4 buildings as shown in the diagram below:[5]

Sunrise building

Orbit building

Jupiter building

Oracle Building

Distance between various buildings

|  |  |
| --- | --- |
| Jupiter building to orbit building | 50 mtrs |
| Orbit building to oracle building | 85 mtrs |
| Oracle building to sunrise building | 25 mtrs |
| Sunrise building to jupiter building | 170 mtrs |
| Jupiter building to oracle building | 125 mtrs |
| Orbit building to sunrise building | 45 mtrs |

Number of computers in each of the buildings is follows:

|  |  |
| --- | --- |
| Jupiter building | 30 |
| Orbit building | 150 |
| Oracle building | 15 |
| Sunrise building | 35 |

(i)  suggest a cable layout of connections between the buildings.

(ii) suggest the most suitable place(i.e. building) to house the server of this organisaton with a suitable reason. Ans Orbit building –becoz it supports max no of computers

(iii) suggest the placement of the following devices with justification.

1. Internet connecting device/modem (b) switch

(iv) The organisation is planning to link its sale counter situated in various parts of the same city, which type of network out of LAN,MAN or WAN will be formed? Justify your answer. Ans MAN

(v) what do you mean by PAN? Explain giving example. Ans PAN-personal area network. Home office

Q32 (A) Write the output of the code given below: [5]

def printMe(q,r=2):

p=r+q\*\*3

print(p)

#main code

a=10

b=5

printMe(a,b)

printMe(r=4,q=2)

Ans

1005

12

     (B) The code given below inserts the following record in the table student

Rollno name clas marks

Integer string integer integer

Note the following to establish connectivity between python and MySQL

Username is root

Password is toor@123

The table exists in a “stud” database

The details (Rollno, Name, Clas and Marks) are to be accepted from the user.

Write the following missing statements to complete the code:

Statement 1 - to form the cursor object

Statement 2- to execute the command that insert the record in the table student.

Statement 3- to add the record permanently in the database

   import mysql.connector as mysql

   def  sqldata():

           con=mysql.connect(host=”localhost”, user=”root”,passwd=”toor@123”,database=”stud”)

mycursor=\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_   #statement 1 Ans statement 1 con.cursor()

rno=int(input(“enter roll number”))

name=input(“enter name”))

clas=int(input(“enter class”))

marks=int(input(“enter marks”))

querry=”insert into student values ( {}, ‘{}’,{},{} )”.format(rno,name,clas,marks)

\_\_\_\_\_\_\_\_\_\_\_\_ # statement 2 Ans statement 2: mycursor.execute(querry)

\_\_\_\_\_\_\_\_\_\_\_\_ # statement 3 Ans statement 3: con.commit()

print(“data added successfully”)

OR

1. Write the output of the code given below:

s=”C++VsPy”

m=” “

for i in range(0,len(s)):

if s[i] >=’a’ and s[i]<=m :

m=m+s[i].upper()

elif s[i]>=’n’ and s[i] <=’z’:

m=m+s[i-1]

elif s[i].isupper() :

m=m+s[i].lower()

else:

m=m+’&’

print(m) Ans c&&vVpP

(B)

The code given below inserts the following record in the table student

Rollno name clas marks

Integer string integer integer

Note the following to establish connectivity between python and MySQL

Username is root

Password is toor@123

The table exists in a “stud” database

The details (Rollno, Name, Clas and Marks) are to be accepted from the user.

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 students whose marks

 are greater than 90.

Statement 3- to read the complete result of the query (records whose marks are greater

 than 90) in to the object named data, from the table student in the database.

   import mysql.connector as mysql

   def  sqldata():

           con=mysql.connect(host=”localhost”, user=”root”,passwd=”toor@123”,database=”stud”)

mycursor=\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_   #statement 1 Ans statement 1: con.cursor()

print(“students with marks greater than 90 are “)

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ #statement 2 Ans statement 2 : mycursor.execute(‘select \* from student where marks>90’)

data=\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ #statement 3 Ans statement 3: mycursor.fetchall()

for  i in data:

print(i)

print()

Q33 What is the advantage of using a csv file for permanent storage? Write a program in Python that defines and calls the following user defined functions: [5]

(i) ADD()- to accept and add data of a teacher to a CSV file ‘ teacher.csv’ . Each record consists of a list with field elements as tid, name , mobile to store teacher id, teacher name and teacher mobile number respectively.

(ii) COUNTRECORD()- to count the number of records present in the CSV file named ‘teacher.csv’ .

Ans

import csv

def add():

f=open('teacher.csv','a')

d=csv.writer(f,lineterminator='\n')

tid=input('teacher id')

name=input('teacher name')

mobile=input('teacher mobile')

d.writerow([tid,name,mobile])

f.close()

def COUNTRECORD():

f=open('teacher.csv')

d=csv.reader(f)

c=0

for i in d:

print(i)

c=c+1

print(c)

add()

COUNTRECORD()

OR

 Give any one point of difference between a binary file and a CSV file. Write a program in Python that defines and calls the following user defined functions :

(i) add()- to accept and add data of an employee to a CSV file ‘ employee.csv’. Each record consists of a list with field elements as eid, name and salary to store employee id, employee name and employee salary respectively.

(ii) search()- to display the records of the employee whose salary is more than 40000.

Ans

import csv

def add():

f=open('employee.csv','a')

d=csv.writer(f,lineterminator='\n')

tid=input('employee id')

name=input('employee name')

salary=input('employee salary')

d.writerow([tid,name,salary])

f.close()

def search():

f=open('employee.csv')

d=csv.reader(f)

c=0

for i in d:

if int(i[2])>40000:

print(i)

add()

add()

search()

**SECTION E**

Q34. Layna creates a table STOCK to maintain computer stock in vidyalaya. After creation of the table, she has entered data of 8 items in the table : [1+1+2]

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| stockid | dopurchase | Name | make | price |
| 101 | 2020-07-06 | CPU | ACER | 12000 |
| 102 | 2020-09-01 | CPU | ACER | 12750 |
| 103 | 2020-09-01 | MONITOR | ACER | 7500 |
| 104 | 2016-08-03 | PROJECTOR | GLOBUS | 37250 |
| 105 | 2016-05-26 | VISUALIZER | GLOBUS | 17500 |
| 106 | 2020-07-23 | WIFI RECEIVER | ZEBION | 450 |
| 107 | 2015-02-18 | PRINTER | LEXMARK | 38000 |
| 108 | 2020-07-23 | HEADPHONE | BOAT | 750 |

Based on the data given above answer the following questions:

(i) identify the most appropriate column, which can be considered as Primary Key. ans stockid

(ii) If three columns are added and 5 rows are deleted from the table stock , what will be the new degree and cardinality of the above fields?Ans degree-8, cardinality-3

(iii) write the statements to

1. Insert the following records into the table

stockid=201, dateofpurchase- 18 oct 2022 , name - neckphone , make - BOAT , price – 500

Ans insert into stock values(201,’2022-10-18’,’neckphone’,’BOAT’,500);

1. Decrease the price of stock by 5% whose date of purchased year is 2020

ANs update stock where price=price-0.05 where dopurchase like ‘2020%’;

OR ( option for part (iii) only)

(iii) write the statement to:

1. Delete the record of stock which were purchased before year 2015.

Ans delete from stock where dopurchase < ‘2015’;

1. Add a column STATUS in the table with datatype as char with 1 character.

Ans alter table stock add (status char);

Q35. Vishnu is a Python programmer. He has written a code and created a binary file recrod.dat with studentid, subjectcode and marks. The file contains 10 records. He now has to update a record to based on the studentid entered by the user and update the marks. The updated record is then to be written in the file temp.dat. The records which are not to be updated also have to be written to the file temp.dat. If the student id is not found , an appropriate message should be displayed. As a Python  expert, help  him to complete the following code based on the requirement given below: [1+1+2]

import  \_\_\_\_\_\_\_\_\_\_\_\_ #statement 1 Ans pickle

def update \_data():

rec={ }

fin=open(‘record.dat’, ‘rb’)

fout=open(‘ \_\_\_\_\_\_\_\_\_\_\_’) #statement 2 Ans ‘temp.dat’,’ab’

found=False

sid=int(input(‘enter student id to update the marks ‘))

While True:

try:

rec=\_\_\_\_\_\_\_\_\_#statement 3 Ans pickle.load(fin)

if rec[‘studentid’]==sid:

found=True

rec[‘marks’]=int(input(‘enter new marks’))

pickle. \_\_\_\_\_\_\_\_\_ #statement 4 Ans dump(rec,fout)

else:

pickle.dump(rec,fout)

except:

break

if found==True:

print(‘the marks of studentid’ ,sid, ‘has been updated’)

else:

print(‘ no student with such id is not found’)

fin.close()

fout.close()

* 1. which module should be imported in the program?(statement 1)
  2. write the correct statement required to open a temporary file named temp.dat(statement 2)
  3. Which statement should Aryan 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?