First Preboard Examination
Computer Science (083)
CLASS XII

SET-2

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

General Instructions:

- *Please check this question paper contains 35 questions.*
- *The paper is divided into 5 Sections- A, B, C, D and E.*
- *Section A, consists of 18 questions (1 to 18). Each question carries 1 Mark.*
- *Section B, consists of 7 questions (19 to 25). Each question carries 2 Marks.*
- *Section C, consists of 5 questions (26 to 30). Each question carries 3 Marks.*
- *Section D, consists of 2 questions (31 to 32). Each question carries 4 Marks.*
- *Section E, consists of 3 questions (33 to 35). Each question carries 5 Marks.*
- *All programming questions are to be answered using Python Language only.*

S.No	Question	Marks
	SECTION A	
1	Name the module to which the following functions belong : (i) median() (ii) dump()	1
2	Explain the use of 'Foreign Key' in a Relational Database Management System. Give example to support your answer.	1
3	What will be the output of the following statement: `print(12%3.0-2**3**2//9)` a. -56 b. -7.0 c. -9 d. -56.0	1

4	Krishav is looking for his dream job but has some restrictions. He loves Delhi and would take a job there if he is paid over Rs. 40,000 a month. He hates Chennai and demands atleast Rs. 1,00,000 to work there. In any other location he is willing to work for Rs. 60,000 a month. The following code shows his basic strategy for evaluating a job offer.
	CODE :
	`pay=_____`
	`location=_____`
	`if location== 'Mumbai':`
	`  print('I will take it ')  #Statement 1`
	`elif location == 'Chennai':`
	`  if pay < 100000:`
	`  print ('No way')  #Statement 2`
	`  else:`
	`  print ('I am willing! ')  #Statement 3`
	`elif location == 'Delhi' and pay > 40000:`
	`  print ('I am happy to join')  #Statement 4`
	`elif pay > 60000:`
	`  print ('I accept the offer') #Statement 5`
	`else:`
	`  print ('No thanks, I can find something better')`
	On the basis of the above code, choose the right statement which will be executed when location = "Chennai" and pay = 100000
	(A) Statement 1 (B) Statement 2
	(C) Statement 3 (D) Statement 4
		1

5	Which SQL statement will not generate any error message? (a) SELECT * FROM EMP WHERE EMPNO LIKE(1,2,3,4); (b) SELECT * FROM EMP WHERE SAL BETWEEN 3000 TO 15000; (c) SELECT * FROM EMP WHERE COMM IS NOT NULL; (d) All of the above	1
6	(a) Ketan is working as a team leader in Resonance LTD. Company. He wants to host an online meeting for all the branches of India and present an annual report. Which technology/ Protocol is best suited for such a task? (b) Mahi is accessing remote computers and data over TCP/IP networks. Which protocol is used to do this?	1
7	Consider the following code and answer the questions that follow: **Book={1:'Thriller',2:'Mystery',3:'Crime',4:'Children Stories'}** **Library = {'5':'Madras Diaries', '6':'Malgudi Days'}** With reference to the above declared dictionaries, predict the output of the following code fragments :	1

Code 1	Code 2
Library=Book Library.pop(2) print(Library) print(Book)	Library=Book.copy() Library.pop(2) print(Library) print(Book)

(a)

Code 1	Code 2
{1: 'Thriller',2: 'Mystery', 3: 'Crime', 4: 'Children stories'} {1: 'Thriller', 2: 'Mystery', 3:'Crime', 4: 'Children stories'}	{1: 'Thriller', 3: 'Crime', 4: 'Children stories'} {1: 'Thriller', 3: 'Crime', 4: 'Children stories'}

(b)

Code 1	Code 2
{2: 'Mystery'} {1: 'Thriller', 2: 'Mystery', 3: 'Crime', 4: 'Children stories'}	{1: 'Thriller', 3: 'Crime', 4: 'Children stories'} {1: 'Thriller', 3: 'Crime', 4: 'Children stories'}

(c)

Code 1	Code 2
{1: 'Thriller', 3: 'Crime', 4: 'Children stories'} {1: 'Thriller', 3: 'Crime', 4: 'Children stories'}	{1: 'Thriller', 3: 'Crime', 4: 'Children stories'} {1: 'Thriller', 2: 'Mystery', 3: 'Crime', 4: 'Children stories'}

(d)

Code 1	Code 2
{1: 'Thriller', 3: 'Crime', 4: 'Children stories'} {1: 'Thriller', 2: 'Mystery', 3: 'Crime', 4: 'Children stories'}	{1: 'Thriller', 3: 'Crime', 4: 'Children stories'} {1: 'Thriller', 3: 'Crime', 4: 'Children stories'}

8	Consider the statements given below and then choose the correct output from the given options:
	`x = "abcdef"`
	`i = "i"`
	`while i in x:`
	`  print(i, end=" ")`
	Options:
	(a) a b c d e f (b) abcdef (c) i i i i.... (d) No Output
		1

9	What will be the output of the following code:-
	`x,d =tuple('abbcbcbbaab'), {}`
	`for i in x:`
	`  d[i]=x.count(i)`
	`print(d)`
	Options :
	(a) {'a':'aaa', 'b':'bbbbbb', 'c': 'cc'} (b) {'a': 3, 'b': 5, 'c': 1}
	(c) {'a': 4, 'b': 8, 'c': 2} (d) {'a': 3, 'b': 6, 'c': 2}
		1

10	What possible outputs(s) will be obtained when the following code is executed?
	`import random`
	`L = []`
	`x,y=8,1`
	`while True:`
	`  a=random.randrange(y+1,x)`
	`  if(a%2==0):`
	`  L.append(a)`
	`  if(len(L)==5):`
	`  break`
	`print(L)`
	Options:
	a) [6, 2, 6, 4, 2] b) [2, 2, 8, 4, 4] c) [6, 2, 1, 4, 6] d) [2, 2, 4, 4, 4]
		1

11	Mr. Pradeep is working as a network admin in Durga Pvt. Ltd. He needs to connect 40 stand-alone computers in one unit using a server. How is it beneficial for the company? List out any two points.	1

12	Consider the given function that finds and returns the sum of its arguments:
	`total =  0`
	`def sum (arg1, arg2):`
	`  total = arg1 + _____  # Line 1`
	`  return _____  # Line 2`
	`total = sum (10, 20)`
	`print(total)`
	Complete the missing statements at Line 1 and Line 2
		1

13	Find the output:
	`a,b=2,0.0`
	`try:`
	`  c,d=a*b,a//b`
	`  print(c,d)`
	`except ZeroDivisionError:`
	`  print('Error')`
	`finally:`
	`  print('Quit')`
		1

14	Karan wants to increase the size of the FIRST_NAME column in a database table EMP from 10 to 20 characters. Write an appropriate query to change the size.	1
15	Give one example each of PAN and LAN type of networks.	1

16	What will be the output of the following Python code?
	`for i in range (5):`
	`  with open("data.txt", "w") as f:`
	`  if i > 2:`
	`  break`
	`print(i)`
	Options :
	(A) None (B) 3 (C) 2 (D) Error
		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): Built in functions are predefined in the language that are used directly. Reasoning(R): print () and input () are built in functions.	1
18	Assertion(A): Parameters with default arguments can be followed by parameters with no default argument. Reasoning(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
	SECTION B	
19	(i) Expand the following terms: HTTP, ARPANET (ii) Differentiate between communication using Optical Fibre and Ethernet Cable in context of wired medium of communication technologies. **OR** (i) Name any two common web browsers. (ii) What is protocol? Which protocol is used to search information from Internet using an Internet browser?	1+1= 2

20	The code given below accepts a string as an argument and checks whether the string is a palindrome or not. Observe the following code carefully and rewrite it after removing **all syntax and logical errors**. Underline all the corrections made.
	`def palin(string)`
	`  x=len(string)`
	`  i,j=0,x-1`
	`  while(i<x//2):`
	`  if string[i]==string[0]: # Comparing respective characters`
	`  # from beginning and end of string`
	`  f=1`
	`  else:`
	`  f=0`
	`  break`
	`  i,j = i+1,j-1`
	`  if f==0:`
	`  print('String is palindrome')`
	`  else:`
	`  print('String is not palindrome')`
	`palin(input('Enter a string'))`
		2

21	Write a python method/function Count3and7(N) to find and display the count of all those numbers between 1 and N, which are either divisible by 3 or by 7. For example : If the value of N is 15 The count should be displayed as 7 (as 3,6,7,9,12,14,15 in between 1 to 15 are either divisible by 3 or 7) **OR** Write a function, lenWords(STRING), that takes a string as an argument and returns a list containing those words from the string that end with “ing”. For example, if the string is "Spring is coming", Then the list should be [‘Spring’, ‘coming’]	2

22 (2)

Predict the output of the following code:

```
d,s ={1:['a','@'], 2:('20',),3:'abc'},''
for i in d:
    for j in list(d[i]):
        if j.isalpha():
            s=s+j
    d.update({i:[s,len(s)]})
print(d)
```

23 (1+1=2)

Write Python statements for the following tasks using BUILT-IN functions only:

(i) To remove the name "Pankaj" from the list NAME containing names of students.

(ii) To divide the string ST into different parts from each occurrence of the alphabet 'a'

OR

A module named **mymodu**le has one function and one dictionary:

```
def greeting(name):
  print("Hello, " + name)
person1 = { "name": "John", "age": 36,  "country": "Norway"}
```

Write Python statements for the following :

(i) Execute the function greeting with argument 'Virat' after importing the module.

(ii) Import only the person1 dictionary from the module and print the value of age from the dictionary.

24 (2)

WRITE SQL COMMANDS TO :

(i) CREATE A DATABASE OFFICE

(ii) Create a table EMPL from the given structure:

Column Name	**Data Type**	**Constraints**
Emp_id	Numeric	Primary key
Name	Text with maximum 25 characters	Not null
Date_of_birth	Date	
Panno	Text with maximum 12 characters	Non repeated

OR

Niti creates a table RESULT to maintain marks secured by students in Sem1, Sem 2, Sem 3 and their division.Later, he entered data of 4 students in the table:

ROLL_NO	SNAME	SEM1	SEM2	SEM3	DIVISION
101	KARAN	366	410	402	I
102	NAMAN	300	350	325	II
103	ISHA	400	410	415	I
104	RENU	350	357	415	I

Based on the data given above, write SQL queries for the following :

(i) Add primary key constraint to the attribute ROLL_NO

(ii) To insert the following record into the table

Roll No- 108, Name- Aadit, Sem1- 470, Sem2- 444, Sem3- 475, Div– I

25 (2)

Predict the output of the following code:

```
value = 50
def display(N):
    global value
    value = 25
    if N%7==0:
        value += N
    else:
        value -= N
print(value, end="#")
display(14)
print(value, display(value), value, sep='@')
```

SECTION C

26 Predict the output of the Python code given below: **3**

```
s = 'OnL!nE@8:30pm'
k,a = len(s), ''
while k>1:
    if s[k-1].isalpha():
        a = a + s[k-2]
    elif s[k-2].isdigit():
        a = a + s[k+1]
    else:
        a = a + str(k)
    k = k - 1
print(a)
```

27 Consider the table EMP and DEPT given below and write the output of the SQL queries that follow. **1*3= 3**

Relation: EMP

EMPNO	ENAME	JOB	HIREDATE	SAL	COMM	DEPTNO
7369	SMITH	CLERK	1980-12-17	800.00	600.00	20
7499	ALLEN	SALESMAN	1981-02-20	1600.00	300.00	30
7521	WARD	SALESMAN	1981-02-22	1250.00	500.00	40
7566	JONES	CLERK	1981-04-02	2975.00	NULL	20
7654	MARTIN	SALESMAN	1981-09-28	1250.00	1400.0	30
7698	BLAKE	MANAGER	1981-05-01	2850.00	200.00	30
7782	CLARK	MANAGER	1981-06-09	2450.00	100.00	10
7839	KING	PRESIDENT	1981-11-17	5000.00	NULL	10
7844	TURNER	CLERK	1981-09-08	1500.00	0.00	40

Relation: DEPT

DEPTNO	DNAME	LOC
10	ACCOUNTING	NEWYORK
20	RESEARCH	DALLAS
30	SALES	CHICAGO
40	OPERATIONS	BOSTON

i) SELECT DEPTNO, MAX(SAL), MIN(HIREDATE) FROM EMP GROUP BY DEPTNO;

ii) How many rows are returned when we execute SELECT * FROM EMP,DEPT;

iii) SELECT AVG(COMM), COUNT(*) FROM EMP WHERE JOB='CLERK' OR ENAME LIKE '%N';

28 Write a function Disp_line() in Python to read a text file Alpha.txt and display those lines which have at least two 5-letter words. **3**

OR

Write a function countdigits() in Python, which should read each character of a text file "marks.txt", count the number of digits and display the file content and the number of digits.

Example: If the "marks.txt" contents are as follows:

Harikaran:40,Atheeswaran:35,Dahrshini:30,Jahnavi:48

The output of the function should be:

Harikaran:40,Atheeswaran:35,Dahrshini:30,Jahnavi:48

('Total number of digits in the file:', 8)

29 | Consider the table STORE given below: | 1*3=3

Table: STORE

ItemNo	Item	Scode	Qty	Rate	LastBuy
2005	SharpenerClassic	23	60	8	2009-06-31
2003	BallPen0.25	22	50	25	2010-02-01
2002	GelPenPremium	21	150	12	2010-02-24
2006	GelPenClassic	21	250	20	2009-03-11
2001	EraserSmall	22	220	6	2009-01-19
2004	EraserBig	22	110	8	2009-12-02
2009	BallPen0.5	21	180	18	2009-11-03

Based on the given table, write SQL queries for the following:

i) Increase the rate of Eraser by Rs 2.

ii) Remove the details of those items whose Suppliers code (Scode) is 22 or Quantity in Store (Qty) is less than 10 from the table Store.

iii) To display the Minimum Rate of items for each Supplier individually as per Scode from the table Store.

30 | Considering the dictionary storing the price of vegetables, | 3

```
veg={'potato':30,'beans':40,'carrot':40,'cabbage':20,'brinjal':10,'tomato':50,'drumstick':60}
```

i) Write PUSHCOSTLY(veg,costly) function to build a stack costly by pushing the names of vegetables whose price is > 40 from dictionary veg.

ii) Write POPCOSTLY(costly) function to pop and display the names of vegetables from stack costly

Write appropriate statements in the main part to call the functions.

For example: The stack costly should contain: **['tomato', 'drumstick']**
And The output should be:
drumstick
tomato

SECTION D

31 | Consider the tables BOOKINGS and PACKAGE given below: | 1*4=4

Table: BOOKINGS

Pcode	Tourist_Name	Agency	No_of_persons	Tdate
P2	Hardep	Pristine	4	2011-01-12
P3	Diana	Voyager	4	2011-03-19
P1	Rajiv Khanna	Travels	12	2011-04-12
P4	Veena Sethi	Voyager	5	2011-04-01

Table: PACKAGE

Pcode	Pname	Per_Person_amt
P1	Kerala	20000
P2	Malaysia	35000
P3	Goa	56525
P4	Manali	15000

(i) Display the name of all the tourists, their travel dates, names of the places they are traveling to and the total amount to be paid by each tourist.

(ii) Arrange the contents of the table BOOKINGS in ascending order of travel date

(iii) Display the maximum no_of_persons traveling of each travel agency.

(iv) Remove the record of the tourist 'Rajiv Khanna'.

32 Consider the file Class12.csv containing the data as given below: 4

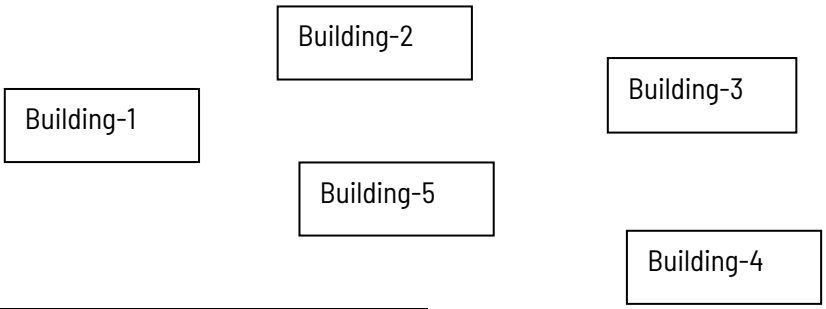
RollNo	Name	Accounts	Maths	BSt	IP	Eco
10	Ritu Jain	88	67	87	97	56
11	Mridul Mehta	67	78	77	87	90
12	Divij	87	89	78	82	92
13	Yashvi Verma	67	82.3	76.5	98.2	78.6
14	Deepak Virmani	56.7	76.5	88	78	67

(i) Write a function SHOW() to read the CSV file which is stored with tab ("\t") separator and display Roll numbers and name of all students.

(ii) Write a function CALCULATE() to find the total marks (Total_marks) for each student and add it to a new file marks.csv.

SECTION E

33 PVS Computers decided to open a new office at Ernakulum, the office consists of Five Buildings and each contains number of computers as are shown below: 1*5= 5



Building	No of computers
1	40
2	45
3	11
4	60
5	70

Distance between the buildings:

Building 1 and 4	20 Meters
Building 2 and 4	50 Meters
Building 5 and 4	120 Meters
Building 3 and 5	70 Meters
Building 1 and 5	65 Meters
Building 2 and 5	50 Meters

Computers in each building are networked but buildings are not networked so far. The Company has now decided to connect the buildings also.

(i) Suggest a cable layout for connecting the buildings.

(ii) Is there a requirement of a repeater in the given cable layout? Why / Why not?

(iii) The company wants to link this office to their head office at Delhi

(a) Which type of transmission medium is appropriate for such a link?

(b) What type of network would this connection result into?

(iv) Where server is to be installed? Why?

(v) Suggest the wired Transmission Media used to connect all buildings efficiently.

34 (i) Complete the missing statements : 2+3= 5

(a) A _____ function reads first 15 characters of file.

(b) A _____ function requires a sequence of lines, lists, tuples etc. to write data into a text file.

	(ii) Consider a file, Record.DAT, containing records of the following structure: [Student_id, SName, Marks] Write a function, updateData(Student_id, marks) that updates the marks of the student whose id is passed as an argument. 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. (No changes are to be made in the original file Record.dat) If the student_id is not found, an appropriate message should also be displayed. Also, Write statements to invoke the above function. **OR** (i) Write the python statements to perform the following task: (a) Open a binary file "some.dat" in read as well as write mode. (b) To disconnect the binary file "abc.dat" from the file handle named x. (ii) A Binary file, FACTORY.DAT has the has the following structure: (Factory_id, Factory_Name, Area, Turnover) Write the following user defined functions to perform the specified operations : **AD_FACT() :** to add records of some factories as per user's choice into the binary file factory.dat. Take required inputs by user. **SHOW_FACT() :** to read and display those objects from the binary file factory.dat which are in 'Lucknow' with turnover less than 100000.	

35	(i) Give one difference between char and varchar data types in SQL.
	(ii) a) Which record will get inserted in the table by following code?
	`import mysql.connector as sqltor`
	`mycon=sqltor.connect(host="localhost",user="learner",`
	`passwd="fast" ,database="test")`
	`cursor=mycon.cursor()`
	`query="INSERT INTO books(title,isbn)VALUES`
	`(%s%s)".%('Amita','123456')`
	`cursor.execute(query)`
	`mycon.commit()`
	b) Code in python has been written to delete records of any roll number from a table stud in a database school. Complete missing statements.
	`import mysql.connector as sqltor`
	`mycon=sqltor.connect(host="localhost", user="root",`
	`passwd="admin",database="school")`
	`cursor=mycon.cursor()`
	`n=int(input("enter roll no"))`
	`query="delete from stud where rollno=_____"` **#1**
	`cursor._____ (query)` **# 2**
	`mycon._____` **#3**
	`print("record deleted")`
	OR
	(i) Give one difference between DDL and DML commands.
	(ii) Sartaj has created a MYSQL database COMPANY. He now wants to create table EMP in the database with fields:
	• *empno(Employee number)- integer*
	• *name(Name) – string*
	• *salary – float*
	Help Sartaj to create the required table and insert a record in the table (with any valid values given by the user) by writing the required program in Python.
	Note the following to establish connectivity between Python and MySQL:
	➔ *Username – root*
	➔ *Password – tiger*
	➔ *Host – localhost*
		1+4= 5