FIRST PREBOARD EXAMINATION

Class: XII | Computer Science (083) | SET - II

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

General Instructions:

- This question paper contains 37 questions.
- All questions are compulsory. However, internal choices have been provided in some questions. Attempt only one of the choices in such questions.
- The paper is divided into 5 Sections - A, B, C, D and E.
- Section A consists of 21 questions (1 to 21). Each question carries 1 Mark.
- Section B consists of 7 questions (22 to 28). Each question carries 2 Marks.
- Section C consists of 3 questions (29 to 31). Each question carries 3 Marks.
- Section D consists of 4 questions (32 to 35). Each question carries 4 Marks.
- Section E consists of 2 questions (36 to 37). Each question carries 5 Marks.
- All programming questions are to be answered using Python Language only.
- In case of MCQ, text of the correct answer should also be written.

Q.No.	Section-A (21 × 1 = 21 Marks)	Marks
1.	Which of the following symbols are used for comments in Python? (A) // (B) " (C) /**/ (D) #	**(1)**
2.	Which of the following is correct way to declare string variable in Python? (A) fruit = 'banana' (B) 1fruit = "banana" (C) fruit = banana (D) fruit = (banana)	**(1)**
3.	How to find the last element of list in Python? Assume `bikes` is the name of list. (A) bikes[0] (B) bikes[-1] (C) bikes[lpos] (D) bikes[:-1]	**(1)**

<table>
<tr><th>Q.No.</th><th>Section-A (21 × 1 = 21 Marks)</th><th>Marks</th></tr>
<tr><td>4.</td><td>Consider the following table: IPL2022
<table>
<tr><th>Rank</th><th>Batter</th><th>Runs</th><th>Team</th></tr>
<tr><td>1</td><td>Jos Buttler</td><td>863</td><td>RR</td></tr>
<tr><td>2</td><td>KL Rahul</td><td>616</td><td>LSG</td></tr>
<tr><td>3</td><td>Quinton de Kock</td><td>508</td><td>LSG</td></tr>
<tr><td>4</td><td>Hardik Pandya</td><td>487</td><td>GT</td></tr>
<tr><td>5</td><td>Shubman Gill</td><td>483</td><td>GT</td></tr>
</table>
Observe the following given code and write the output:
<pre>
import mysql.connector as ms
cn = ms.connect(host='localhost', user='root', passwd='root',
database='IPL')
cr = cn.cursor()
cr.execute("select * from IPL2022")
r = cr.fetchone()
r = cr.fetchone()
r = cr.fetchone()
data = int(r[2])
print(data * 2)
</pre></td><td>(1)</td></tr>
<tr><td>5.</td><td>If <code>a = 'cpp'</code>, <code>b = 'buzz'</code> then what is the output of:
<pre>
c = a - b
print(c)
</pre>
(A) cpp-buzz (B) TypeError: unsupported operand
(C) cppbuzz (D) None of the above</td><td>(1)</td></tr>
<tr><td>6.</td><td>What would be the output of the following code :
<pre>
a = 8.6
b = 2
print(a // b)
</pre>
(A) 4.3 (B) 4.0 (C) 4 (D) compilation error</td><td>(1)</td></tr>
<tr><td>7.</td><td>Find the output :
<pre>
a = True
b = False
c = True
if not a or b:
    print("a")
elif not a or not b and c:
    print("b")
elif not a or b or not b and a:
    print("c")
else:
    print("d")
</pre>
(A) a (B) b (C) c (D) d</td><td>(1)</td></tr>
</table>

Q.No.	Section-A (21 × 1 = 21 Marks)	Marks

8.	Write the missing statement to complete the following code:
	`file = open("example.txt", "r")`
	`data = file.read(100)`
	`_____ #Move the file pointer to the beginning of the file`
	`next_data = file.read(50)`
	`file.close()`
		(1)

9.	If a table which has one Primary key and two alternate keys. How many Candidate keys will this table have? (A) 1 (B) 2 (C) 3 (D) 4	**(1)**

10.	What will be the output of the following code?
	`c = 10`
	`def add():`
	`  global c`
	`  c = c + 2`
	`  print(c, end='#')`
	`add()`
	`c = 15`
	`print(c, end='%')`
	(A) 12%15# (B) 15#12% (C) 12#15% (D) 12%15#
		(1)

11.	Which switching technique breaks data into smaller packets for transmission, allowing multiple packets to share the same network resources.	**(1)**
12.	Which network device is used to connect two networks that use different protocols? (A) Modem (B) Gateway (C) Switch (D) Repeater	**(1)**
13.	Which protocol is used to transfer files over the Internet? (A) HTTP (B) FTP (C) PPP (D) HTTPS	**(1)**
14.	Which aggregate function can be used to find the cardinality of a table? (A) sum() (B) count() (C) avg() (D) max()	**(1)**
15.	In which datatype the value stored is padded with spaces to fit the specified length. (A) DATE (B) VARCHAR (C) FLOAT (D) CHAR	**(1)**
16.	Which SQL command can change the degree of an existing relation?	**(1)**

17.	What will be the output of the following code?
	`tuple1 = (1, 2, 3)`
	`tuple2 = tuple1`
	`tuple1 += (4,)`
	`print(tuple1 == tuple2)`
	(A) True (B) False (C) tuple1 (D) Error
		(1)

Q.No.	Section-A (21 × 1 = 21 Marks)	Marks
18.	If `my_dict` is a dictionary as defined below, then which of the following statements will raise an exception? `my_dict = {'apple': 10, 'banana': 20, 'orange': 30}` (A) my_dict.get('orange') (B) print(my_dict['apple', 'banana']) (C) my_dict['apple'] = 20 (D) print(str(my_dict))	**(1)**

19.	What will be the output of the following code snippet?
	`message = "World Peace"`
	`print(message[-2::-2])`
		(1)

Q20 and Q21 are Assertion(A) and Reason(R) 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

20.	**Assertion (A):** Positional arguments in Python functions must be passed in the exact order in which they are defined in the function signature. **Reasoning (R):** This is because Python functions automatically assign default values to positional arguments.	**(1)**
21.	**Assertion (A):** A SELECT command in SQL can have both WHERE and HAVING clauses. **Reasoning (R):** WHERE and HAVING clauses are used to check conditions, therefore, these can be used interchangeably.	**(1)**

Q.No.	Section-B (7 × 2 = 14 Marks)	Marks
22.	Match the following terms with their definitions/descriptions: **Column A** / **Column B** a. positional argument — i. value automatically assigned if parameter is not passed b. global scope — ii. specify parameter and its value in function call c. default argument — iii. accessed in all the functions d. named argument — iv. function call must match number and order of arguments	**(2)**
23.	Differentiate between URL and domain name with the help of an appropriate example.	**(2)**

Q.No.	Section-B (7 × 2 = 14 Marks)	Marks

24.	The code provided below is intended to swap the first and last elements of a given tuple. However, there are syntax and logical errors in the code. Rewrite it after removing all errors. Underline all the corrections made.
	`def swap_first_last(tup)`
	`  if len(tup) < 2:`
	`  return tup`
	`  new_tup = (tup[-1],) + tup[1:-1] + (tup[0])`
	`  return new tup`
	`result = swap first last((1, 2, 3, 4))`
	`print("Swapped tuple: result)`
		(2)

25.	Predict the output of the following python code:
	`def foo(s1, s2):`
	`  l1 = []`
	`  l2 = []`
	`  for x in s1:`
	`  l1.append(x)`
	`  for x in s2:`
	`  l2.append(x)`
	`  return l1, l2`
	`a, b = foo("FUN", 'DAY')`
	`print(a, b)`
		(2)

26.	Identify the correct output(s) of the following code. Also write the minimum and the maximum possible values of the variable `b`.
	`import random`
	`a = "encourage"`
	`b = random.randint(1, 8)`
	`for i in range(0, b, 2):`
	`  print(a[i], end='#')`
	(a) e# (b) e#c#U#a#
	(c) e#c#u#a#e# (d) e#c#u#
		(2)

27.	Write a function `ThreeLetters(L)`, where `L` is the list of elements (list of words) passed as an argument to the function. The function returns another list named `'l3'` that stores all three letter words along with its index. For example: If `L` contains `["RAJ", "ANKIT", "YUG", "SHAAN", "HET"]` The list `l3` will have `["RAJ", 0, "YUG", 2, "HET", 4]` Support your answer with a function call statement.	**(2)**
28.	A) List one advantage and one disadvantage of tree topology. **OR** B) Expand the term POP3. What is the use of POP3?	**(2)**

Q.No.	Section-C (3 × 3 = 9 Marks)	Marks

29.	Write a method/function `SHOW_TODO()` in python to read contents from a text file `ABC.TXT` and display those lines which have occurrence of the word "TO" or "DO".
	OR
	Write a function `countINDIA()` which reads a text file `'myfile.txt'` and print the frequency of word 'India' in each line. (Ignore its case)
	Example: If file content is as follows:
	`INDIA is my country.`
	`I live in India, India is best.`
	`India has many states.`
	The function should return:
	Frequency of India in Line 1 is: 1
	Frequency of India in Line 2 is: 2
	Frequency of India in Line 3 is: 1
		(3)

30.	Mr. Ramesh has created a dictionary containing Student IDs and Marks as key value pairs of students. Write a program to perform the following operations using separate user defined functions. 1. Push the keys (IDs) of the dictionary into the stack named `IDStack`, if the corresponding marks is > 50 2. Pop and display the content of the stack and display "Stack Empty" message when all elements are removed from the stack. For eg: If `D = {2000: 58, 2001: 45, 2002: 55, 2003: 40}` Then output will be: `2000 2002 Stack Empty` **OR** Pankaj has to create a record of books containing BookNo, BookName and BookPrice. A) Write a user-defined function `PUSH()` to create a stack named `BookStack` and perform the following operations: 1. Input the Book Number, Book Name and Book Price from the user and Push into the stack. 2. Display the status of stack after each insertion. B) Write function `POP()` to pop and display the STACK contents if it has at least one element, otherwise display "stack empty" message. C) Write function `peek(BookStack)`: This function displays the topmost element of the stack without deleting it. If the stack is empty, the function should display 'None'.	**(3)**

Q.No.	Section-C (3 × 3 = 9 Marks)	Marks

31.	Predict the output of the following code:
	`t = ['1:14', 'R!yA', 'DeLh!']`
	`s, x = 0, ""`
	`for i in t:`
	`  for j in range(len(i)):`
	`  if i[j].isdigit():`
	`  s = s + int(i[j])`
	`  elif not i[j].isalpha():`
	`  x = x + i[j-1]`
	`t.extend([s**2, x[::-1]])`
	`print(t)`
	OR
	Predict the output of the following code:
	`d = {'a': 12, 'c': 101, 'z': 41, 'b': 30}`
	`l = []`
	`x = s = 0`
	`for i in d.keys():`
	`  l.append(d.get(i) * x)`
	`  x += 1`
	`print(l)`
	`for (k, v) in d.items():`
	`  if l[s] == v:`
	`  print(k, ':', v)`
	`  s = s + 1`
		(3)

<table>
<tr><th>Q.No.</th><th>Section-D (4 × 4 = 16 Marks)</th><th>Marks</th></tr>
<tr><td>32.</td><td>A. Consider the table states as given below :
<table>
<tr><th>Code</th><th>Sname</th><th>Capital</th><th>Districts</th><th>Flower</th><th>FDate</th></tr>
<tr><td>1001</td><td>Gujarat</td><td>Gandhinagar</td><td>33</td><td>Marigold</td><td>1960-05-01</td></tr>
<tr><td>1002</td><td>Rajasthan</td><td>Jaipur</td><td>50</td><td>Rohida</td><td>1949-03-30</td></tr>
<tr><td>1003</td><td>Goa</td><td>Panaji</td><td>2</td><td>Jasmine</td><td>1987-05-30</td></tr>
<tr><td>1004</td><td>Punjab</td><td>Chandigarh</td><td>23</td><td>Gladiolus</td><td>1950-01-26</td></tr>
<tr><td>1005</td><td>W Bengal</td><td>Kolkata</td><td>14</td><td>Golden Shower</td><td>1956-01-11</td></tr>
<tr><td>1006</td><td>Karnataka</td><td>Bangalore</td><td>31</td><td>Lotus</td><td>1956-01-11</td></tr>
<tr><td>1007</td><td>U.P.</td><td>Lucknow</td><td>75</td><td>Palash</td><td>1950-01-24</td></tr>
</table>
Write the output of the following queries:
1. <code>select min(fdate) from states;</code>
2. <code>select count(districts) from states where districts > 30;</code>
3. <code>select avg(districts) from states where sname like '%u%';</code>
4. <code>select count(distinct fdate) from states;</code>
OR
B. Write SQL queries for the questions given below based on table chips:
<table>
<tr><th>Brand_name</th><th>Flavour</th><th>Price</th><th>Qty</th></tr>
<tr><td>Lays</td><td>Onion</td><td>25</td><td>7</td></tr>
<tr><td>Bingo</td><td>Pudina</td><td>10</td><td>42</td></tr>
<tr><td>Pringles</td><td>Salty</td><td>37</td><td>8</td></tr>
<tr><td>Uncle Chips</td><td>Spicy</td><td>15</td><td>20</td></tr>
<tr><td>Doritos</td><td>Pudina</td><td>48</td><td>8</td></tr>
<tr><td>Cornitos</td><td>Spicy</td><td>18</td><td>28</td></tr>
</table>
1. Display brand name and flavour of those chips whose qty is above 10.
2. Display details of chips which are spicy costing less than 20 Rs.
3. Display only the different brand names of chips whose brand names contains letter 'i' in descending order of brand name.
4. Display the number of different flavours of chips available.</td><td>(4)</td></tr>
<tr><td>33.</td><td>What is delimiter in CSV file?
Write a program in python that defines and calls the following user defined function:
i) <code>Add()</code> - To accept and add data of an employee to a CSV file <code>'record.csv'</code>. Each record consists of a list with field elements as <code>empid</code>, <code>name</code> and <code>salary</code> to store employee id, employee name and employee salary.
ii) <code>CountR()</code>: To count and display the number of employees whose salary is more than 20000 in the CSV file.</td><td>(4)</td></tr>
</table>

<table>
<tr><th>Q.No.</th><th>Section-D (4 × 4 = 16 Marks)</th><th>Marks</th></tr>
<tr><td>34.</td><td>Consider the following tables Participant and Activity and write SQL queries:
Table: Participant
<table>
<tr><th>ADMNO</th><th>NAME</th><th>HOUSE</th><th>ACTIVITYCODE</th></tr>
<tr><td>A001</td><td>Sagar Patel</td><td>Red</td><td>AC001</td></tr>
<tr><td>A002</td><td>Kaushik Maheta</td><td>Blue</td><td>AC002</td></tr>
<tr><td>A003</td><td>Noor Joshi</td><td>Green</td><td>AC003</td></tr>
<tr><td>A004</td><td>Mahesh Joshi</td><td>Yellow</td><td>AC004</td></tr>
<tr><td>A005</td><td>Nutan Chauhan</td><td>Blue</td><td>AC001</td></tr>
<tr><td>A006</td><td>Mahek Patel</td><td>Yellow</td><td>AC004</td></tr>
<tr><td>A007</td><td>Sidhdharth Patel</td><td>Blue</td><td>AC003</td></tr>
</table>
Table: Activity
<table>
<tr><th>ACTIVITYCODE</th><th>ACTIVITYNAME</th><th>POINTS</th></tr>
<tr><td>AC001</td><td>Poem Recitation</td><td>120</td></tr>
<tr><td>AC002</td><td>Maths Quiz</td><td>150</td></tr>
<tr><td>AC003</td><td>Science Quiz</td><td>180</td></tr>
<tr><td>AC004</td><td>Sports</td><td>200</td></tr>
</table>
1. To set ADMNO as primary key in table Participant.
2. To display Activity Code along with the number of participants participating in each activity (Activity Code wise) from the table Participant.
3. To display Names of Participants along with Activity Codes and Activity Names for only those participants who are taking part in Activities that have 'quiz' in their Activity Names and Points of activity are above 150.
4. (a) To display total number of students in each house.
OR
(b) To display Names of Participants, Activity Code, and Activity Name in alphabetic ascending order of names of participants.</td><td>(4)</td></tr>
<tr><td>35.</td><td>A table, named IPL2024, in SPORTS database is given below:
<table>
<tr><th>Rank</th><th>Batter</th><th>Runs</th><th>Team</th></tr>
<tr><td>1</td><td>Jos Buttler</td><td>863</td><td>RR</td></tr>
<tr><td>2</td><td>KL Rahul</td><td>616</td><td>LSG</td></tr>
<tr><td>3</td><td>Quinton de Kock</td><td>508</td><td>LSG</td></tr>
<tr><td>4</td><td>Hardik Pandya</td><td>487</td><td>GT</td></tr>
<tr><td>5</td><td>Shubman Gill</td><td>483</td><td>GT</td></tr>
</table>
Write a python function <code>ShowandAdd()</code> to display the top 3 run-scorers after connecting to the database through mysql user <code>'scott'</code> and password <code>'tiger'</code>.
Function should also add the given record in the table: <code>(6, 'David Miller', 481, 'GT')</code></td><td>(4)</td></tr>
</table>

Q.No.	Section-E (2 × 5 = 10 Marks)	Marks
36.	A binary file named "EMP.dat" has some records of the structure `[EmpNo, EName, Post, Salary]` (a) Write a user-defined function named `NewEmp()` to input the details of a new employee from the user and store it in `EMP.dat`. (b) Write a user-defined function named `SumSalary(Post)` that will accept as argument the post of an employees & read the contents of `EMP.dat` and calculate the SUM of salary of all employees of that Post. Print the total salary. (c) Write a function named `UpdateSalary(EmpNo)` to update the salary of an employee in the file whose `EmpNo` is given by the user.	**(5)**
37.	Rohan has started a business all over India and he wants to establish a network among its offices and branches. Help him to choose various communication media as per requirement. **Head Office:** Ahmedabad, Gujarat, 10 Computers **Branch 1:** Delhi, 50 Computers **Branch 2:** Mumbai, 100 Computers **Branch 3:** Kolkata, 100 Computers 1) Rohan wants high speed network in Branch 1, Delhi. Which cable he has to use to provide maximum speed among computers. 2) Rohan has low budget in Branch 2, Mumbai. Which cable he has to use to keep low-cost network establishment. 3) Rohan does not know about guided or unguided media. Kindly help him to classify the below media into Guided and Unguided media. a. Co-axial b. Radio wave c. Fiber Optic d. Microwave 4) Rohan wants to connect Head office with all branches. Which communication media he has to use to connect head office with all branches. 5) Suggest him the suitable topology to connect all the computers of Head Office.	**(5)**