Series &RQPS/S

Set-4

Q.P. Code **91/S**

Roll No. | | | | | | | | |

Candidates must write the Q.P. Code on the title page of the answer-book.

COMPUTER SCIENCE

Time allowed : 3 hours *Maximum Marks : 70*

NOTE

(I) Please check that this question paper contains **15** printed pages.

(II) Please check that this question paper contains **35** questions.

(III) Q.P. Code given on the right hand side of the question paper should be written on the title page of the answer-book by the candidate.

(IV) **Please write down the serial number of the question in the answer-book before attempting it.**

(V) 15 minute time has been allotted to read this question paper. The question paper will be distributed at 10.15 a.m. From 10.15 a.m. to 10.30 a.m., the students will read the question paper only and will not write any answer on the answer-book during this period.

General Instructions :

Please read the instructions carefully.

- *This question paper has **5** Sections : Sections A, B, C, D, E.*
- *All questions are compulsory. However, an internal choice of approximately 30% is provided.*
- *Section A has 18 questions carrying 1 mark each.*
- *Section B has 7 Very Short Answer (VSA) type questions carrying 2 marks each.*
- *Section C has 5 Short Answer (SA) type questions carrying 3 marks each.*
- *Section D has 2 Long Answer (LA) type question carrying 4 marks.*
- *Section E has 3 Source-based / Case-based / Passage-based questions carrying 5 marks each.*

SECTION A

18×1=18

1. State True or False : *1*

"In Python, tuple is a mutable data type".

2. The primary key is selected from the set of _____ . *1*

(A) composite keys (B) alternate keys

(C) candidate keys (D) foreign keys

3. What will be the output of the following statement ? *1*

```
print(6+5/4**2//5+8)
```

(A) `-14.0` (B) `14.0`

(C) `14` (D) `-14`

4. Select the correct output of the code : *1*

```
S = "text#next"
print(S.strip("t"))
```

(A) `ext#nex` (B) `ex#nex`

(C) `text#nex` (D) `ext#next`

5. In SQL, which command will be used to add a new record in a table ? *1*

(A) `UPDATE`

(B) `ADD`

(C) `INSERT`

(D) `ALTER TABLE`

6. 'L' in HTML stands for : *1*

(A) Large (B) Language

(C) Long (D) Laser

7. Identify the valid Python identifier from the following : *1*

(A) `2user` (B) `user@2`

(C) `user_2` (D) `user 2`

8. Consider the statements given below and then choose the correct output from the given options : *1*

```
Game="World Cup 2023"
print(Game[-6::-1])
```

(A) `CdrW` (B) `ce o`

(C) `puC dlroW` (D) `Error`

9. Predict the output of the following Python statements : *1*

```
>>>import statistics as s
>>>s.mode ([10, 20, 10, 30, 10, 20, 30])
```

(A) `30`

(B) `20`

(C) `10`

(D) `18.57`

10. Which of the following output will never be obtained when the given code is executed ? *1*

```
import random
Shuffle = random.randrange(10)+1
Draw = 10*random.randrange(5)
print ("Shuffle", Shuffle, end="#")
print ("Draw", Draw)
```

(A) `Shuffle 1 # Draw 0`

(B) `Shuffle 10 # Draw 10`

(C) `Shuffle 10 # Draw 0`

(D) `Shuffle 11 # Draw 50`

11. Ethernet card is also known as : *1*

(A) LIC (B) MIC

(C) NIC (D) OIC

12. What will be the output of the given code ? *1*

```
a=10
def convert(b=20):
    a=30
    c=a+b
    print(a,c)
convert(30)
print(a)
```

13. For the following Python statement : *1*

```
N = (25)
```

What shall be the type of N ?

(A) Integer

(B) String

(C) Tuple

(D) List

14. Mr. Ravi is creating a field that contains alphanumeric values and fixed lengths. Which MySQL data type should he choose for the same ? *1*

(A) VARCHAR

(B) CHAR

(C) LONG

(D) NUMBER

15. Fill in the blank : *1*

The full form of WWW is _____.

16. _____ files are stored in a computer in a sequence of bytes. *1*

(A) Text

(B) Binary

(C) CSV

(D) Notepad

*Questions No.**17** and **18** are Assertion and Reason type questions. Each question consists of two statements, namely, Assertion (A) and Reason (R). Select the most suitable option considering the Assertion and Reason.*

17. *Assertion (A) :* Global variables are accessible in the whole program. *1*

Reason (R) : Local variables are accessible only within a function or block in which it is declared.

(A) Both Assertion (A) and Reason (R) are true and Reason (R) is the correct explanation of Assertion (A).

(B) Both Assertion (A) and Reason (R) are true, but Reason (R) is ***not*** the correct explanation of Assertion (A).

(C) Assertion (A) is true, but Reason (R) is false.

(D) Assertion (A) is false, but Reason (R) is true.

18. *Assertion (A) :* If numeric data are to be written to a text file, the data needs to be converted into a string before writing to the file. *1*

Reason (R) : write() method takes a string as an argument and writes it to the text file.

(A) Both Assertion (A) and Reason (R) are true and Reason (R) is the correct explanation of Assertion (A).

(B) Both Assertion (A) and Reason (R) are true, but Reason (R) is ***not*** the correct explanation of Assertion (A).

(C) Assertion (A) is true, but Reason (R) is false.

(D) Assertion (A) is false, but Reason (R) is true.

SECTION B

7×2=14

19. (a) (i) Expand the following terms : *1+1=2*

URL, XML

(ii) Give one difference between **HTTP** and **FTP**.

OR

(b) (i) Define the term IP address with respect to network.

(ii) What is the main purpose of a Router ? *1+1=2*

20. Observe the following code carefully and rewrite it after removing **all syntactical errors**. Underline all the corrections made. *2*

```
def 1func():
    a=input("Enter a number"))
    if a>=33
        print("Promoted to next class")
    ELSE:
        print("Repeat")
```

21. (a) Write the definition of a method/function **`SearchOut(Teachers, TName)`** to search for **`TName`** from a list **`Teachers`**, and display the position of its presence. *2*

For example :

If the **`Teachers`** contain **`["Ankit", "Siddharth", "Rahul", "Sangeeta", "rahul"]`**

and **`TName`** contains **`"Rahul"`**

The function should display

```
Rahul at 2
rahul at 4
```

OR

(b) Write the definition of a method/function **`Copy_Prime(lst)`** to copy all the prime numbers from the list **`lst`** to another list **`lst_prime`**. *2*

22. Predict the output of the following code : *2*

```
d={"IND":"DEL","SRI:"COL","CHI":"BEI"}
str1=""
for i in d:
  str1=strl+str(d[i])+"@"
  str2=str1[:-1]
print (str2)
```

23. (a) Write the Python statement for **each** of the following tasks using BUILT-IN functions/methods only : *1+1=2*

(i) To delete an element 10 from the list **`lst.`**

(ii) To replace the string **`"This"`** with **`"That"`** in the string **`str1.`**

OR

(b) A dictionary **`dict2`** is copied into the dictionary **`dict1`** such that the common key's value gets updated. Write the Python commands to do the task and after that empty the dictionary **`dict1`**. *2*

24. (a) Mr. Atharva is given a task to create a database, **Admin**. He has to create a table, **users** in the database with the following columns : *1+1=2*

User_id - int

User_name - varchar(20)

Password - varchar(10)

Help him by writing SQL queries for both tasks.

OR

(b) Ms. Rita is a database administrator at a school. She is working on the table, **student** containing the columns like **Stud_id**, **Name**, **Class** and **Stream**. She has been asked by the Principal to strike off the record of a student named **Rahul** with **student_id** as **100** from the school records and add another student who has been admitted with the following details : *1+1=2*

Stud_id - 123

Name - Rajeev

Class - 12

Stream - Science

Help her by writing SQL queries for both tasks.

25. Predict the output of the following code : *2*

```
def Total (Num=10):
  Sum=0
  for C in range(1,Num+1):
       if C%2!=0:
          continue
       Sum+=C
  return Sum
print(Total(4),end="$")
print(Total(),sep="@")
```

SECTION C

5×3=15

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

```
s="India Growing"
n = len(s)
m=""
for i in range (0, n) :
  if (s[i] >= 'a' and s[i] <= 'm') :
    m = m + s [i].upper()
  elif (s[i] >= 'O' and s[i] <= 'z') :
    m = m +s [i-1]
  elif (s[i].isupper()):
    m = m + s[i].lower()
  else:
    m = m + '@'
print (m)
```

27. Consider the table **Stationery** given below and write the output of the SQL queries that follow. *3*

Table : Stationery

ITEMNO	ITEM	DISTRIBUTOR	QTY	PRICE
401	Ball Pen 0.5	Reliable Stationers	100	16
402	Gel Pen Premium	Classic Plastics	150	20
403	Eraser Big	Clear Deals	210	10
404	Eraser Small	Clear Deals	200	5
405	Sharpener Classic	Classic Plastics	150	8
406	Gel Pen Classic	Classic Plastics	100	15

(i) SELECT DISTRIBUTOR, SUM(QTY) FROM STATIONERY GROUP BY DISTRIBUTOR;

(ii) SELECT ITEMNO, ITEM FROM STATIONERY WHERE DISTRIBUTOR = "Classic Plastics" AND PRICE > 10;

(iii) SELCET ITEM, QTY * PRICE AS "AMOUNT" FROM STATIONERY WHERE ITEMNO = 402;

28. (a) Write a method/function **COUNTWORDS()** in Python to read contents from a text file **DECODE.TXT**, to count and return the occurrence of those words, which are having 5 or more characters. *3*

OR

(b) Write a method/function **COUNTLINES()** in Python to read lines from a text file **CONTENT.TXT**, and display those lines, which have @ anywhere in the line. *3*

For example :

If the content of the file is :

Had an amazing time at the concert last night with @MusicLoversCrew.
Excited to announce the launch of our new website!

G20 @ India

The method/function should display

Had an amazing time at the concert last night with @MusicLoversCrew
G20 @ India

29. Consider the table Rent_cab, given below :

Table : Rent_cab

Vcode	VName	Make	Color	Charges
101	Big car	Carus	White	15
102	Small car	Polestar	Silver	10
103	Family car	Windspeed	Black	20
104	Classic	Studio	White	30
105	Luxury	Trona	Red	9

Based on the given table, write SQL queries for the following : *3*

(i) Add a primary key to a column name Vcode.

(ii) Increase the charges of all the cabs by 10%.

(iii) Delete all the cabs whose maker name is "Carus".

30. A dictionary, **`d_city`** contains the records in the following format :

`{state:city}`

Define the following functions with the given specifications **:** *3*

(i) **`push_city(d_city):`** It takes the dictionary as an argument and pushes all the cities in the stack **`CITY`** whose states are of more than 4 characters.

(ii) **`pop_city():`** This function pops the cities and displays **`"Stack empty"`** when there are no more cities in the stack.

SECTION D

2×4=8

31. Consider the tables GAMES and PLAYERS given below :

Table : GAMES

GCode	GameName	Type	Number	PrizeMoney
101	Carrom Board	Indoor	2	5000
102	Badminton	Outdoor	2	12000
103	Table Tennis	Indoor	4	NULL
104	Chess	Indoor	2	9000
105	Lawn Tennis	Outdoor	4	25000

Table : PLAYERS

PCode	Name	GCode
1	Nabi Ahmad	101
2	Ravi Sahai	108
3	Jatin	101
4	Nazneen	103

Write SQL queries for the following : *4*

(i) Display the game type and average number of games played in each type.

(ii) Display prize money, name of the game, and name of the players from the tables Games and Players.

(iii) Display the types of games without repetition.

(iv) Display the name of the game and prize money of those games whose prize money is known.

32. Mr. Mahesh is a Python Programmer working in a school. He has to maintain the records of the sports students. He has created a csv file named **sports.csv**, to store the details. The structure of **sports.csv** is :

[sport_id, competition, prize_won]

where

sport_id, is Sport id (integer)

competition is competition name (string)

prize_won is ("Gold", "Silver", "Bronze")

Mr. Mahesh wants to write the following user-defined functions :

Add_detail(): to accept the detail of a student and add to a csv file, **"sports.csv".**

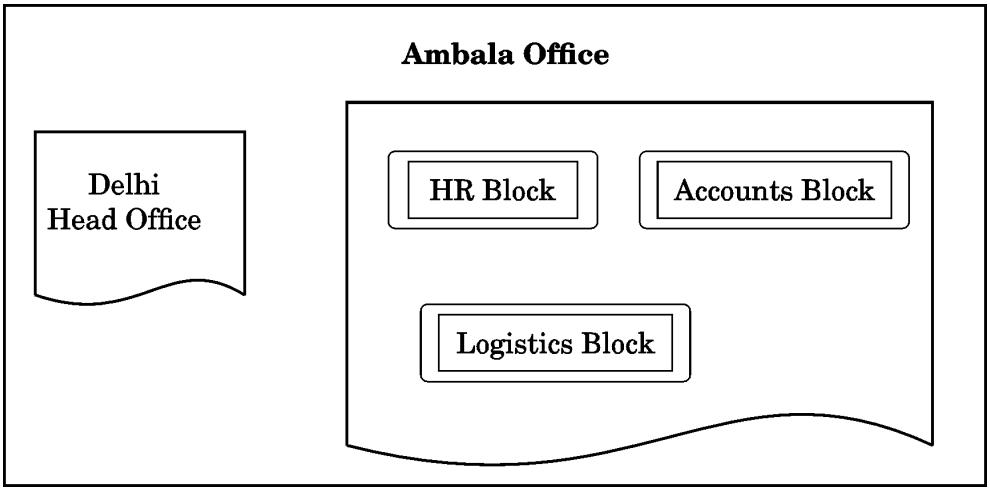
Count_Medal(): to display the name of competitions in which students have won **"Gold"** medal.

Help him in writing the code of both the functions. *4*

SECTION E

3×5=15

33. Logistic Technologies Ltd. is a Delhi based organization which is expanding its office set-up to Ambala. At Ambala office campus, they are planning to have 3 different blocks for HR, Accounts and Logistics related work. Each block has a number of computers, which are required to be connected to a network for communication, data and resource sharing.



As a network consultant, you have to suggest the best network related solutions for them for issues/problems raised in (i) to (v), keeping in mind the distances between various block/locations and other given parameters.

Distances between various blocks/locations :

HR Block to Accounts Blocks	400 meters
Accounts Block to Logistics Block	200 meters
Logistics Block to HR Block	150 meters
Delhi Head Office to Ambala Office	220 Km

Number of computers installed at various blocks are as follows :

HR Block	70
Accounts Block	40
Logistics Block	30

(i) Suggest the most appropriate block/location to house the SERVER in the Ambala office. Justify your answer.

(ii) Suggest the best wired medium to efficiently connect various blocks within the Ambala office compound.

(iii) Draw an ideal cable layout (Block to Block) for connecting these blocks for wired connectivity.

(iv) The company wants to schedule an online conference between the managers of Delhi and Ambala offices. Which protocol will be used for effective voice communication over the Internet ?

(v) Which kind of network will it be between Delhi office and Ambala office ? *5*

34. (a) (i) What is the main purpose of **`seek()`** and **`tell()`** method ?

(ii) Consider a binary file, **`Cinema.dat`** containing information in the following structure :

`[Mno, Mname, Mtype]`

Write a function, **`search_copy()`**, that reads the content from the file **`Cinema.dat`** and copies all the details of the **`"Comedy"`** movie type to file named **`movie.dat.`** *5*

OR

(b) (i) Give one difference between **`write()`** and **`writeline()`** function in text file.

(ii) A Binary file, **`"Items.dat"`** has the following structure :
`[Icode, Description, Price]`
Where
`Icode – Item code`
`Description – Detail of item`
`Price – Price of item`
Write a function **`Add_data()`**, that takes **`Icode, Description and Price`** from the user and writes the information in the binary file **`"Items.dat"`**. *5*

35. (a) (i) Define the term foreign key with respect to RDBMS.

(ii) Sangeeta wants to write a program in Python to delete the record of a candidate "Raman" from the table named **`Placement in MySQL`** database, **`Agency`**:
The table Placement in MySQL contains the following attributes :
`CName – String`
`Dept – String`
`Place – String`
`Salary – integer`
Note the following to establish connectivity between Python and MySQL :

- Username – **`root`**
- Password – **`job`**
- Host – **`localhost`**

Help Sangeeta to write the program in Python for the above mentioned task. *5*

OR

(b) (i) Give one difference between CHAR and VARCHAR datatype in MySQL.

(ii) Rahim wants to write a program in Python to insert the following record in the table named **Bank_Account** in MySQL database, **Bank** :

- **Accno** – integer
- **Cname** – string
- **Atype** – string
- **Amount** – float

Note the following to establish connectivity between Python and MySQL :

- Username – **admin**
- Password – **root**
- Host – **localhost**

The values of fields **Accno, Cname, Atype** and **Amount** have to be accepted from the user. Help Rahim to write the program in Python. *5*