## SAMPLE PAPER - 2

## SUBJECT: COMPUTER SCIENCE

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

**General Instructions:-**

- This question paper contains five sections, Section **A** to **E**.
- All questions are compulsory.
- **Section A** have **18** questions carrying **01 mark** each.
- **Section B** has **07** Very Short Answer type questions carrying **02 marks** each.
- **Section C** has **05** Short Answer type questions carrying **03 marks** each.
- **Section D** has **03** Long Answer type questions carrying **05** marks each.
- **Section E** has **02** questions carrying **04 marks** each. One internal choice is given **Q. 35** against part c only
- All programming questions are to be answered using Python Language only.

## SECTION-A

**1.** **State True or False.**

2ndNAme is an invalid identifier in Python **[1]**

**2.** Which of the following is a valid arithmetic operator in Python?

(A) //　　　　　　(B) ?　　　　　　(C) <　　　　　　(D) and **[1]**

**3.** Which of the following commands is not a data manipulation language?

(A) SELECT　　(B) INSERT　　(C) UPDATE　　(D) ALTER **[1]**

**4.** Which type of error occurs when rules of programming language are misused?

(A) Syntax error　(B) Semantic error　(C) Run rime error　(D) Logical error **[1]**

**5.** Consider a declaration T = [1, 'Python', '3.14'].

Which of the following represents the data type of L?

(A) list　　　　　(B) tuple　　　　(C) dictionary　　(D) string **[1]**

**6.** What will be the output of the following code?

```
L = ['a','b','c','d']
    print (" ".join(L))
```

(A) Error　　　　(B) a b c d　　　(C) ['a','b','c','d']　(D) None of these **[1]**

**7.** **Fill in the blank**

The valid sequence type of L is _____ where

L = ['Mon','23','hello','60.5']

(A) dictionary　(B) string　　　(C) tuple　　　　(D) list **[1]**

**8.** Which of the following is not a comparison query?

(A) IN      (B) BETWEEN      (C) LIKE      (D) AND      **[1]**

**9.** Stdout, stdin snd stderr are _____

(A) Structure      (B) File pointer      (C) File descriptors      (D) Streams      **[1]**

**10.** **Fill in the blank**

_____ function returns the sum of values of a column of numeric type

(A) TOTAL ()      (B) ADD ()      (C) SUM()      (D) All of these      **[1]**

**11.** Which function helps us to randomize the items of a list?

(A) shuffle()      (B) mean()      (C) choice()      (D) max()      **[1]**

**12.** **Fill in the blank**

_____ is used to get the row-id of the last modified row?

(A) cursor.getrwid      (B) cursor.endrwid      (C) cursor.batrowid      (D) cursorcxitrowid      **[1]**

**13.** **Fill in the blank**

Bluetooth is an example of _____ .

(A) personal area network                 (B) local area network

(C) virtual private network                (D) wide area network      **[1]**

**14.** What is the output of "hello"+l+2+3?

(A) hellol23      (B) hello      (C) Error      (D) hello6      **[1]**

**15.** Which method of cursor class Is used to insert or update multiple rows using a single query?

(A) cursor.executeall(query, rows)          (B) cursor.execute(query, rows)

(C) cursor.executemultiple (query, rows)      (D) cursor.executemany(query, rows)      **[1]**

**16.** The _____ clause places condition with aggregate functions.

(A) HAVING      (B) WHERE      (C) IN      (D) BETWEEN      **[1]**

**17 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) :** Higher precedence operator is evaluated before the lower precedence operator.

**Reason (R) :** For operators with equal precedence, the expression is evaluated from right to left.      **[1]**

**18.** **Assertion (A) :** CSV stands for comma separated value.

**Reason (R) :** CSV files are a common file format for transferring and storing data.      **[1]**

# SECTION-B

**19.** **Rectify the error (if any) in the given statements.**

    >>> str="Hello Python"

    >>> str[6]='S' **[2]**

**20.** What do you mean by a modem? Why is it used? **[2]**

**OR**

Explain the purpose of a router.

**21.** **(a)** What will be the output of the following Python code?

```
V - 50
def  Change  (N):
global V
V, N = N, V
print(V,  N, sep="#",end="@")
Change(20)
print (V)
```
**[1]**

    **(b)** What is the output of the following Python code?

```
def  ListChange ( ) :
    for i  in range (len (L)) :
        if  L[i] %2 == 0:
            L[i] = L(i)*2
        if  L[i]%3  == 0:
            L[i] = L [i]*3
        else:
            L[i] = L[i]*5
L - [2,6,9,10]
ListChange()
for  i   in L:
    print (i, end="#")
```

**22.** What is join in SQL? **[2]**

**23.** (a) How is a domain name different from a URL ?

    (b) Why is Internet not the world wide web ? **[2]**

**24.** Give the output of the following statements :

>>> str = "Honesty is the best policy"

>>> str.replace ('o', '*')

<div align="center">**OR**</div>

Write the output of the following code snippet       **[2]**

tup = ('geek',)

n = 5

for i in range (int (n)) :

    tup = (tup,)

print(tup)

**25.** Differentiate between DDL & DML command. Identify DDL & DML command from the following: (UPDATE SELECT, ALTER, DROP)      **[2]**

<div align="center">**OR**</div>

In SQL, name the clause that is used to display the tuples in ascending order of an attribute and, what is the use of IS NULL operator?

<div align="center">**SECTION-C**</div>

**26.**   **(a)**   Consider the table given below

<div align="center">**Table : Teacher**</div>

| T_ID | Name | Age | Department | Date_of_Join | Salary | Gender |
|------|----------|-----|-------------|--------------|--------|--------|
| 1 | Jugal | 34 | Computer Sc | 10/01/2017 | 12000 | M |
| 2 | Sharmila | 31 | History | 24/03/2008 | 20000 | F |
| 3 | Sandeep | 32 | Mathematics | 12/12/2016 | 30000 | M |
| 4 | Sangeeta | 35 | History | 01/07/2015 | 40000 | F |
| 5 | Rakesh | 42 | Mathematics | 05/09/2017 | 25000 | M |
| 6 | Shyam | 50 | History | 27/06/2008 | 30000 | M |
| 7 | Shiv Om | 44 | Computer Sc | 25/02/2017 | 21000 | M |
| 8 | Shalakha | 33 | Mathematics | 31/07/2018 | 20000 | F |

**Table : Posting**

| P_ID | Department | Place |
|------|------------|-------|
| 1 | History | Agra |
| 2 | Mathematics | Raipur |
| 3 | Computer Science | Delhi |

Write SQL query to show all information about the teacher of History department.

**(b)** Find output for SQL queries (i) to (iv), Which are based on the tables GIVEN BELOW.

Table : **TRAINER**

| TID | TNAME | CITY | HIREDATE | SALARY |
|-----|-------|------|----------|--------|
| 101 | SUNAINA | MUMBAI | 199-01-15 | 90,000 |
| 102 | ANAMIKA | DELHI | 1994-12-24 | 80,000 |
| 103 | DEEPTI | CHANDIGARH | 2001-12-25 | 82,000 |
| 104 | MEENAKSHI | DELHI | 2002-12-25 | 78,000 |
| 105 | RICHA | MUMBAI | 1996-01-12 | 95,000 |
| 106 | MANIPRABHA | CHENNAI | 2001-12-12 | 69,000 |

**Table: COURSE**

| CID | CNAME | FEES | STARTDATE | T1D |
|-----|-------|------|-----------|-----|
| C201 | AGDCA | 12,000 | 2018-07-02 | 101 |
| C202 | ADCA | 15,000 | 2018-07-15 | 103 |
| C203 | DCA | 10,000 | 2018-10-01 | 102 |
| C204 | DDTP | 9,000 | 2018-09-15 | 104 |
| C205 | DHN | 20,000 | 2018-08-01 | 101 |
| C206 | O LEVEL | 18,000 | 2018-07-25 | 105 |

(i) SELECT TID, TNAME FROM TRAINER WHERE CITY NOT IN ('DELHI', 'MUMBAI');

(ii) SELECT DISTINCT TID FROM COURSE;

(iii) SELECT TID, COUNT(*), MIN(FEES) FROM COURSE GROUP BY TID HAVING COUNT (*)>1;

(iv) SELECT COUNT (*), SUM (FEES) FROM COURSE WHERE STARTDATE<'2018-09-15';

**[1+2 = 3]**

**27.** Write a method in Python to read lines from a text file DIARY.TXT, and display those lines, which are starting with the letter 'P'. **[3]**

**OR**

Write a function in Python to count the number of lowercase and uppercase characters in a text file "Book.txf".

**28.** **(a)** Consider the following relation Mobile Master & mobile Stock

**Table : MobileMaster**

| M_id | M_company | M_Name | M_price | M_Mf_Date |
|------|-----------|--------|---------|-----------|
| MB001 | Samsung | Galaxy | 4500 | 2013-02-12 |
| MB003 | Nokia | N1100 | 2250 | 2011-04-15 |
| MB004 | Micromax | Unite3 | 4500 | 2016-10-17 |
| MB005 | Sony | Xperia.M | 7500 | 2017-11-20 |
| MB006 | Oppo | Selfle Ex | 8500 | 2010-08-21 |

**Table : Mobile nstock**

| S_id | M_id | M_Qty | M_Supplier |
|------|------|-------|------------|
| S001 | MB004 | 450 | NEW Vision |
| S002 | MB003 | 250 | Praveen Gallery |
| S003 | MB001 | 300 | Classic Mobil Store |
| S004 | MB006 | 150 | A_one Mobiles |
| S005 | MB003 | 50 | Mobile Centre |

Write the output SQL command for question from (v) to (iv) given below:

(i) SELECT M_Id, SUM(M_Qty) FROM Mobilstock GROUP BY M_Id;

(ii) SELECT MAX(M_Mf_Date), MIN(M_Mf_Date) FROM MobileMaster;

(iii) SELECT M+Company, M_Price FROM Mobile Master WHERE M.Pnce>5000;

(iv) SELECT AVG(M_price) FROM MobileMaster;

**(b)** Which command is used to modify the records of the table? **[3]**

**29.** Define a function overlapping () that takes two tots and returns true if they have at least one member in common. False otherwise. **[3]**

**30.** Write

(i) Add new(Book) to Add a new Book

(ii) Remove(Book) to Remove a Book

from a List of Books, considering them to act as PUSH and POP operations of the data structure stack. **[3]**

**OR**

Arr is a stack implemented by a list of numbers.

**(i)** Write a function in Python PUSH(Arr). From this list push all numbers divisible by 5 into a stack implemented using a list. Display the stack if if has at least one element, otherwise display appropriate error message.

**(ii)** Write a function in Python POP(Arr), where The function returns the value deleted from the stack.

# SECTION-D

**31.** Perfect Edu Services Ltd. is an educational organization. It is planning to setup its India campus at Karnataka with its head office at Delhi. The Karnataka Campus has 4 main buildings - ADMIN, ENGINEERING, BUSINESS and MEDIA.

You as a network expert have to suggest the best network related solutions for their problems raised in (i) to (v), keeping in mind the distances between the buildings and other given parameters.

Shortest distances between various buildings:

| | |
|---|---|
| Admin to Engineering | 55 mt |
| Admin to Business | 90 mt |
| Admin to Media | 90 mt |
| Engineering to Business | 55 mt |
| Engineering to Media | 90 mt |
| Business to Media | 45 mt |
| Delhi Head office to Karnataka campus | 2175 km |

Number of computers installed at various buildings are as follows:

| | |
|---|---|
| Admin | 110 |
| Engineering | 75 |
| Business | 40 |
| Media | 12 |
| Delhi Head office | 20 |

**(i)** Suggest the most appropriate location of the server inside the Karnataka campus.

**(ii)** Draw the cable layout to efficiently connect various buildings within the Karnataka campus for connecting the computers.

**(iii)** Which hardware device will you suggest to be procured by the company to be installed to protect and control the internet uses within the campus?

**(iv)** Which of the following will you suggest to establish the online face to face communication between the people in the admin office of Karnataka campus and Delhi Head office.

**(v)** The organization is planning to link its sale counter situated in various part of the same city. Which type of network out of LAN, WAN, MAN will be formed? **[5]**

**32.** **(a)** What does the following code print?

```
for i in range ( 1 , 10 ):
    for j in range ( 1 , 10 ) :
        print(i * j,)
        print()
```

**(b)** **Consider a table structure as follows:**

**Employee**

Emp_Id

Emp_name

Dept

Age.

Write Python code lo create the above table and then create an index as Emp_Id. **[5]**

**OR**

**(a)** **Give die output of following with justification.**

x = 3

x+= x-x

print(x)

**(b)** **Write Python code to create a table Location with following fields**

id $\rightarrow$ id of the location

bldg_code $\rightarrow$ code of the building

room $\rightarrow$ Type of rooms

capacity $\rightarrow$ capacity of the room

**33.** Write the full form of CSV.

Write a function AMCount() in Python, which should read each character of a text file STORY.TXT, should count and display the occurrence of alphabets A and M (including small cases a and m too).

Example:

If the file content is as follows:

Updated information

As simplified by official websites.

The EUCount() function should display the output as:

A or a:4

M or m:2 **[5]**

**OR**

Write any two needs for a data file.

A file sports.dat contains information about a formal Event Participant Write a function that would read contents from file sports.dat and creates a file named Athletics.dat copying only those records from sports.dat where the event name is "Athletics" A.

## SECTION-E

**34.** Consider the following tables Activity and Coach and answer (i) and (ii) parts of this question:

**Table : ACTIVITY**

| ACode | ActivityName | Stadium | Participants Num | PrizeMoney | ScheduleDate |
|-------|--------------|---------|------------------|------------|--------------|
| 1001 | Relay 100 × 4 | Star Annex | 16 | 10000 | 23-Jan-2004 |
| 1002 | High Jump | Star Annex | 10 | 12000 | 12-Dec.-2003 |
| 1003 | Shot Put | Super Power | 12 | 9000 | 01-Jan-2004 |
| 1005 | Long Jump | Star Annex | 12 | 9000 | 01-Jan-2004 |
| 1008 | Discuss Throw | Super Power | 10 | 15000 | 19-Mar-2004 |

**Table : COACH**

| PCode | Name | ACode |
|-------|------|-------|
| 1 | Ahmad Husain | 1001 |
| 2 | Ravinder | 1008 |
| 3 | Janila | 1001 |
| 4 | Naaz | 1003 |

(i) What all domain names are possible in attribute ACode?

#fresh

(ii) Which keyword is used to sort the records of a table in descending order?

(iii) Write SQL commands for the following statements:

    (a) To display the names of all activities with their ACodes in descending order.

    (b) To display sum of PrizeMoney for the Activities played in each of the Stadium separately. **[1 + 1 + 2 = 4]**

**(Option of Part (iii) Only)**

**OR**

(iii) Give the output of the following SQL queries:

    (a) SELECT COUNT (DISTINCT Participants Num) FROM ACTIVITY;

    (b) SELECT MAX (ScheduleDate), MIN (ScheduleDate) FROM Activity;

**35.** Abhinav, an intern is Excel Pvt. Ltd, is developing a project using the cvs module in Python. He has partially developed the code as follows leaving out statements about which he is not very confident. The code also contains error in certain statements. Help him to find the answer of following questions to read the code to read the desired CSV File named "Employee.csv"

```
#CSV File Content
ENO, NAME, DEPARTMENT
El, ROSHAN SHARMA, ACCOUNTS
E2, AASMA KHALID, PRODUCTION
E3, AMRK GILL, MARKETING
E4, SARAH WILLIAMS, HUMAN RESOURCE
# incomplete Code With Errors
import CSV                                        #Statement-1
with open(_'_' newline='  ') as File;
_____                                        #Statement-2
ER = csv. _____                                  #Statement-3
for R in range (ER):                              #Statement-4
   if ____ =='ACCOUNTS":                          #Statement-5
     print(___'_____)                             #Statement-6
```

(a) Abhinav gets an Error for the module name used in Statement. 1. What should he write in place of CSV to import the correct module? **[1]**

(b) Identify the missing code for blank spaces in the line marked as Statement-2 to open the mentioned file. **[1]**

(c) Abhinav gets as Error in Statement-4. What should he write to correct the statement? **[2]**