Marking Scheme Sample paper -4
COMPUTER SCIENCE

Part-A (Section-I) Attempt any 15 Questions

1. (b) sys.readline
   Explanation: The correct format to use this is **sys.stdin.readline.**

2. We define a function in the program for decomposing complex problems into simpler pieces by creating functions and for reducing duplication of code by calling the function for specific task multiple times.

3. file_handle = open("btext.txt", wb+)
   Note : wb+ mode open binary files in read and write mode.

4. (c) a b c = 1000 2000 3000
   Explanation: a b c = 1000 2000 3000 not work
5. (c) a, c
   Explanation: (a) and (c) statements have the correct syntax to open the file in append mode.

6. The Python search path is a list of directories that the Python searches for any Python package or module to be imported.

7. It will extract rows from staff table where person_id is 1 or 3 or 4.

8. This will given an error as importing a packet does not place any of modules into local namespace.

9. Lists are mutable sequence types while tuples are immutable sequence types of Python.

10. An argument is a value sent onto the function from the function call statement.
    e.g. sum(4,3) have 4 and 3 as arguments which are passed to sum() function.

11. To store a web browser's history, the deque is used. Recently visited URLs are added

to the front of the deque, and the URL at the back of the deque is removed after some specified number of insertions at the front.

12. **Candidate key:** It is a set of attributes that uniquely identify tuples in a table. Candidate Key is a super key with no repeated attributes.
Cardinality of a relation represents the number of rows in the relation.

13. Overflow refers to when one tries to push an item in stack that is full.

14. (d) Tuple
Explanation: Tuple is one entry of the relation with several attributes which are fields.

15. i. Voice Over Internet Protocol (VoIP), is a technology that allows you to make voice calls over a broadband Internet connection.
ii. Simple Mail Transfer Protocol is the protocol used for sending e-mail over the Internet.

16. (c) Data Definition Language (DDL)
Explanation: Data Definition Language (DDL) is used to manage the table and index structure.CREATE, ALTER, RENAME, DROP and TRUNCATE statements are the names of few data definition elements.

17.

fetchone()	**fetchall()**
The fetchone() method is used to fetch only one row from the table. The fetchone() method returns the next row of the result-set.	fetchall() is used to fetch multiple values. It fetches all the rows in a resultset. If some rows have already been executed from the result set, then it retrieves the remaining rows from the result set.

18. **Primary Key:** A column or set of columns that uniquely identifies a row within a table is called a primary key.
For example, in the following table **Student**, the column **Roll no.** can uniquely identify each row in the table, hence Roll no. is the primary key of the following table.

Roll no.	Name	Marks	Grade

1	-	-	-
2	-	-	-
3	-	-	-
4	-	-	-

19. Switch is responsible for filtering i.e., transforming data in a specific way and for forwarding packets of the message being transmitted, between LAN segments.
A switch does not broadcast the messages, rather it unicasts the message to its intended destination.

20. Before connecting to a MySQL database make sure

    i. You have created a database
    ii. You have created a table
    iii. This table has fields
    iv. Python module MySQLdb is installed properly on your machine.

21. (d) 0

    Parity refers to the number of bits set to 1 in the data item
    Even parity - an even number of bits are 1
    Odd parity - an odd number of bits are 1
    A parity bit is an extra bit transmitted with a data item, chose to give the resulting bits even or odd parity
    Odd parity - data: 11100011, parity bit 0

Section-II (Case study based Questions)

22. a. Primary Key is a unique and non-null key, which is used to identify a tuple uniquely. If a table has more than one such attributes which identify a tuple uniquely than all such attributes are known as candidate keys.
    b. SELECT GameName, GCode FROM GAMES;
    c. SELECT * FROM Games WHERE PrizeMoney > 7000;
    d. SELECT * FROM Games ORDER BY ScheduleDate;
    e. SELECT SUM(Prizemoney) FROM Games GROUP BY Type;

23. (i) User define function to display total number of words in a file:

```
def countwords():
    s=open ("Quotes.txt", 'r')
    f = s, read()
    z = f. split()

    count=0
    for i in z:
        count=count +1
    print("Total number of words", count)
```

(ii) b. close()

(iii) read(15)

(iv) open()

(v) writelines()

Part – B (Section-I)

24.
```
To = 30  # variable name should be on LHS
for K in range(0, To):  # : was missing
    if k%4 == 0:   # IF should be in lowercase; i.e; if
        print (K * 4)
    else:  # else should be in lower case
        print (K + 3)
```

25.
i. GPRS: General Packet Radio Service
ii. WiFi: Wireless fidelity
iii. POP: Post Office Protocol
iv. SMTP: Simple Mail Transfer Protocol

OR

E-mail (Electronic mail) is sending and receiving messages by a computer. Electronic mail (email or e-mail) is a method of exchanging messages ("mail") between people using electronic devices. The major advantages of E-mail are:

i. Easy record maintenance
ii. Waste reduction
iii. Low Cost
iv. Fast delivery

26. An Internet Protocol (IP) address is a numerical identification and logical address that is assigned to devices connected in a computer network. An IP address is used to uniquely identify devices on the internet and so one can quickly know the location of the system in the network.
In a network, every machine can be identified by a unique IP address associated with it and thus help in providing network security to every system connected in a network.

27. i. **using import** statement
Syntax: import <modulename1>[,<modulename2>,...<modulename3>]
Example:
- import math, cmath
- import random, math, numpy

ii. **using from** statement
Syntax: from <modulename> import <funtion1> [,<function2>,... <function>]
Example:
- from math import sqrt, pow
- from random import random, randint, randrange

OR

The correct syntax for the code is:

```
def describe_intelligent_life_form():
    height = raw_input ("Enter the height")
    ques = raw_input ("Is it correct(y/n)?")
    weight = raw_input ("Enter the weight")
    favourite_game = raw_input ("Enter favorite game")
    print ("your height", height, 'and weight', weight)
    print ("and your favourite game is", favourite_game, '.')
```

Errors : Function name should not have spaces. We can use underscore in place of spaces.
No variable is defined to obtain value being input, we can use a variable to take input.
Lines 4 and 6 are badly indented; being part of same function, those should be at the same indentation level as that of lines 2, 3, 5 and 7.
And also, variable favourite-game is an invalid identifier as it contains a hyphen, but it should have been an underscore.

28. i. x[1] [2] [1] [2]
    ii. x[1] [2] [1:]

29. 250 # 150
    250 # 100
    130 # 100
    The R = Change(R,S) prints the value of R and S from the function and updates variable R. Then, next print(R, "#",S) statement prints the updated value of R and value of S. Then, S = Change(S) prints the value of S and Q(=30) in the function.

30. Statement:-
    SELECT * FROM Apply ORDER BY FIELD (Experience, 'Govt-sector-experience', 'Public-sector-experience', 'Private-sector-experience', 'Fresher') ;

31. import MySQLdb
    db = MySQLdb.connect("localhost","HRMan","HRman@pwd", "compvtLtd")
    cursor= db.cursor()
    cursor.execute ("Drop Table IF Exists Employee")
    sql="""Create Table Employee(Emp_id INT NOT NULL , Emp_name char(50) NOT NULL , Dept' char(20)
    NOT NULL , Age INT NOT NULL)"""
    cursor.execute(sql)
    cursor.execute(""create index eid on user,(Emp_Id)""")
    cursor.commit()
    cursor.close ()
    db.close()

32. There are two types of SQL functions;

    i. Single Row (or Scalar) functions, work with a single row at a time. A single row function returns a result for every row of a queried table.
    ii. Multiple Row (or Group or Aggregate) functions, work with data of multiple rows at a time and return aggregated value.

33. Outputs of the above given code segments are:

    i. 2 3 4 5 6 6
    ii. 1 #
        1 # 2 #
        1 # 2 # 3 #

Section- II

34. CountYouMe function will count the number of occurences of word You and Me in the file given.

```
def CountYouMe():
    wordlist = [line.strip() for line in open('Notes.txt')]
    # Searching for a word in a file
    count =0
    for word in wordlist:
        words = word.split(" ")
        for word in words:
        # Remove all leading and trailing white spaces
        word =word.strip().lower()
        if word == 'you' or word=='me'():
            count = count + 1
    if count == 0:
        print ("Not found in file")
    else:
        print ("count=", count)
```

Example: If the file contains
You are my best friend
You and me make a good team.

Output would be: count=3

35. def removeFirst (input_list):
    """This function will remove first item of the list"""
    input_list.pop(0)
    #pop removes and returns item of list
    return

    OR

    i. Parameter
    ii. Named argument
    iii. Argument
    iv. Default value
    v. Named/keyword arguments
    vi. Global Variable
    vii. Local Variable

36. As the application program grows larger in size with a lot of modules, we place similar modules in one package and different modules in different packages. This makes a project easy to manage and conceptually clear.

37. i. The default parameters are parameters with a default value set to them. This default value is automatically considered as the passed value WHEN no value is provided for that parameter in the function call statement.
    Thus default arguments are useful when we want to skip an argument in a function call statement and use the default value for it instead.
    ii. The keyword arguments give complete control and flexibility over the values sent as arguments for the corresponding parameters. Irrespective of the placement and order of arguments, keyword arguments are correctly matched. A keyword argument is where you provide a name to the variable as you pass it into the function.

Section-III

38. Internet Protocol (IP) is a set of technical rules that define how computers communicate over a network. There are currently two versions: IP version 4 (IPv4)

and IP version 6 (IPv6).

IPv4 was the first version of Internet Protocol to be widely used and still accounts for most of today's Internet traffic. There are just over 4 billion IPv4 addresses. While that is a lot of IP addresses, it is not enough to last forever. IPv4 and IPv6 are internet protocol version 4 and internet protocol version 6, IP version 6 is the new version of Internet Protocol, which is way better than IP version 4 in terms of complexity and efficiency.

IPv6 is a newer numbering system to replace IPv4. It was deployed in 1999 and provides far more IP addresses, which should meet the need well into the future.

The major difference between IPv4 and IPv6 is the number of IP addresses. Although there are slightly more than 4 billion IPv4 addresses, there are more than 16 billion-billion IPv6 addresses.

	Internet Protocol version 4 (IPv4)	Internet Protocol version 6 (IPv6)
Address size	32-bit number	128-bit number
Address format	Dotted decimal notation : 192.168.0.202	Hexadecimal notation: 3FFE:0400:2807:8AC9::/64
Number of addresses	2^32	2^128

39. i. SELECT *
FROM STORE
ORDER By LastBuy ;

ii. SELECT ItemNo, Item
FROM STORE
WHERE Rate >15 ;

iii. SELECT *
FROM STORE
WHERE Scode = 22 OR Qty > 110 ;

iv. SELECT Scode, Min(Rate)
FROM STORE
GROUP By Scode;

40. **push and pop operation into the stack:-**

```
MAX_SIZE = 1000
stack = [0 for i in range(MAX_SIZE)] -
top = 0

def push():
    global stack, top
    x = int( input ("Enter element to push into stack: " ))
    if top >= MAX_SIZE:
        print("Cannot push. Stack is full. Overflow!")
    else:
        stack[top] = x
        top += 1

def pop():
    global stack, top
    if top == 0:
        print("Cannot pop. Stack is empty. Underflow!")
    else:
        top -= 1
def printStack():
    print(stack[:top])

# __main__
while True:
    print("Please choose operation")
    print("1. Push")
    print("2. Pop")
    print("3. Print")
    print("4. Exit")
    choice = int(input("Please enter 1/2/3 : " ))
    if choice == 4:
        break
    elif choice == 3:
```

```
        printStack()
    elif choice == 2:
        pop( )
    elif choice == 1:
        push()
    else:
        print("Please give a correct input")
```

OR

(TRUE and FALSE) or not (FALSE or TRUE)]

Adding] to the end of the expression and inserting [to the beginning of the stack.

Scanning from Left to Right

S. No	Symbol	Stack	Postfix Expression Y
0		[	
1	(	[(	
2	TRUE		TRUE
3	and	[(and	TRUE
4	FALSE		TRUE FALSE
5	)	[	TRUE FALSE and
6	or	[or	TRUE FALSE and
7	not	[or not	TRUE FALSE and
8	(	[or not (	TRUE FALSE and
9	FALSE		TRUE FALSE and FALSE
10	or	[or not (or	TRUE FALSE and FALSE
11	TRUE		TRUE FALSE and FALSE TRUE
12	)	[or not	TRUE FALSE and FALSE TRUE or
13	]	End of Expression	TRUE FALSE and FALSE TRUE or not or