
CBSE SAMPLE PAPER-01 (2020-21)

Class 12 Computer Science

Maximum Marks: 70

Time Allowed: 3 hours

General Instructions:

1. This question paper contains two parts A and B. Each part is compulsory.
 2. Both Part A and Part B have choices.
 3. Part-A has 2 sections:
 - a. Section – I is short answer questions, to be answered in one word or one line.
 - b. Section – II has two case study questions. Each case study has 4 case-based subparts.
An examinee is to attempt any 4 out of the 5 subparts.
 4. Part - B is the Descriptive Paper.
 5. Part- B has three sections
 - a. Section-I is short answer questions of 2 marks each in which two questions have internal options.
 - b. Section-II is long answer questions of 3 marks each in which two questions have internal options.
 - c. Section-III is very long answer questions of 5 marks each in which one question has an internal option.
 6. All programming questions are to be answered using Python Language only
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Part-A
(Section-I)

Attempt any 15 Questions from Questions 1 to 21.

1. You have the following code segment:
String1 = "my"

```
String2 = "work"
```

```
print(String1 + String2.upper())
```

What is the output of this code?

- a. My Work
 - b. mywork
 - c. myWORK
 - d. MY Work
2. What will the following function return?
- ```
def addEm(x, y, z):
 print(x + y + z)
```
3. What does the rmdir() method do?
4. What is the output of sys.platform [:2] if the code runs on windows operating system?
- a. 'wi'
  - b. Error
  - c. 'op'
  - d. 'sy'
5. To open a file c:\res.txt for reading, we can use (select all correct options):
- a. file = open("c: \res.txt", "r")
  - b. file = open("c:\ \res.txt", "r")
  - c. file = open(r"c: \res.txt", "r")
  - d. file = open(file = "c:\res.txt", "r")
  - e. file = open(file = "c:\ \res.txt", "r")
  - f. file = open("c:\ \res.txt")
- a. d, e, f
  - b. a, e, f

---

c. b, d, f

d. b, c, f

6. How can we find the names that are defined inside the current module?

7. What is Connection? What is its role?

8. How is module namespace organized in a Package?

9. What is the output of the following?

```
dry = {0: 'a', 1: 'b', 2: 'c'}
```

```
for x, y in dry.items():
```

```
 print(x, y, end = ' ')
```

10. Which variables have global scope?

11. When would you go for linear search in an array and when for binary search?

12. Write a query to display the Sum, Average, Highest and Lowest salary of the employees.

13. What are linear data structures?

14. Consider the table with structure as:

Student(ID, name, dept name, tot\_cred)

Which attribute will form the primary key?

a. Dept

b. ID

c. Total credits

d. Name

15. Identify the Domain name and URL from the following:

<http://www.income.in/home.aboutus.htm>

16. SQL applies conditions on the groups through \_\_\_\_\_ clause after groups have been

formed.

- a. Where
- b. Group by
- c. Having
- d. With

17. What is database connectivity?

18. What is the use of wildcard?

19. What is a repeater?

20. What is MySQLdb?

21. The checksum of 1111 and 1111 is \_\_\_\_\_.

- a. 0000
- b. 1111
- c. 1110
- d. 0111

### Section-II (Case study based Questions)

22. Give output for following SQL queries as per given table(s):

**Table: GRADUATE**

| S.NO. | NAME    | STIPEND | SUBJECT     | AVERAGE | DIV |
|-------|---------|---------|-------------|---------|-----|
| 1.    | KARAN   | 400     | PHYSICS     | 68      | 1   |
| 2.    | DIVAKAR | 450     | COMPUTER SC | 68      | 1   |
| 3.    | DIVYA   | 300     | CHEMISTRY   | 62      | 2   |
| 4.    | ARUN    | 350     | PHYSICS     | 63      | 1   |

|     |        |     |             |    |   |
|-----|--------|-----|-------------|----|---|
| 5.  | SABINA | 500 | MATHEMATICS | 70 | 1 |
| 6.  | JOHN   | 400 | CHEMISTRY   | 55 | 2 |
| 7.  | ROBERT | 250 | PHYSICS     | 64 | 1 |
| 8.  | RUBINA | 450 | MATHEMATICS | 68 | 1 |
| 9.  | VIKAS  | 500 | COMPUTER SC | 62 | 1 |
| 10. | MOHAN  | 300 | MATHEMATICS | 57 | 2 |

- i. SELECT MIN (AVERAGE) FROM GRADUATE  
WHERE SUBJECT = "PHYSICS";
- ii. SELECT SUM(STIPEND) FROM GRADUATE WHERE DIV = 2;
- iii. SELECT AVG(STIPEND) FROM GRADUATE WHERE AVERAGE >= 65;
- iv. SELECT COUNT (distinct SUBJECT) FROM GRADUATE;
- v. Write code to rename a table in SQL

23. If the file 'poemBTH.txt' contains the following poem (by Paramhans Yoganand):

God made the Earth;

Man-made confining countries

And their fancy-frozen boundaries.

But with unfound boundless Love

I behold the borderland of my India

Expanding into the World.

Hail, mother of religions, Lotus, scenic beauty and sages!

What outputs will be produced by both the code fragments given below:

- i. What outputs will be produced by the code fragment given below:  

```
my_file = open('poemBTH.txt', 'r')
my_file.read()
```
- ii. What outputs will be produced by the code fragment given below:  

```
my_file = open('poemBTH.txt', 'r')
my_file.read(100)
```
- iii. A \_\_\_\_\_ symbol is used to perform reading as well as writing on files in python.
- iv. To open file data.txt for reading, open function will be written as f = \_\_\_\_\_.

v. To open file data.txt for writing, open function will be written as f = \_\_\_\_\_.

**Part – B (Section-I)**

24. Write a program that rotates the elements of a list so that the element at the first index moves to the second index, the element in the second index moves to the third index, etc., and the element in the last index moves to the first index.
25. What is Phishing? Explain with examples.

OR

Give the full form for the following:

- i. FM
- ii. AM
- iii. NFS
- iv. FTP

26. What do you mean by IP Address? How is it useful in Computer Security?
27. Differentiate between fruitful functions and non-fruitful functions.

OR

Predict the output of the following code:

```
a = 10
y = 5
def myfunc():
 y = a
 a = 2
 print "y =", y ,",a =",a
 print "a + y = ", a + y
 return a + y
print "y =", y,"a =",a
print myfunc()
print "y =",y,"a =",a
```

28. Write a program that reads an integer N from the keyboard computes and displays

---

the sum of the numbers from N to (2 \* N) if N is nonnegative. If N is a negative number, then it's the sum of the numbers from (2 \* N) to N. The starting and ending points are included in the sum.

29. Explain the Scope of Variables.

30. Mr. Mittal is using a table with following columns :

Name, Class, Streamed, Stream\_name

He needs to display names of students who have not been assigned any stream or have been

assigned stream\_name that ends with "computers

He wrote the following command, which did not give the desired result.

**SELECT Name, Class FROM Students**

**WHERE Stream\_name = NULL OR Stream\_name = "%computers" ;**

Help Mr. Mittal to run the query by removing the error and write correct query.

31. What are data types? What are the main objectives of datatypes?

32. What do you understand by Degree and Cardinality of a table?

33. Find the errors in following code and write the correct code.

```
if v < 5:
```

```
 for j in range(v):
```

```
 print "ABC"
```

```
else:
```

```
 print "XYZ"
```

i. Underline the corrections

ii. Write the reason!error next to it in comment form.

## Section- II

34. Create file phonebook.dat that stores the details in following format:

Name Phone

Jivin 86666000

Kriti 1010101

Obtain the details from the user.

35. Write a function which takes two string arguments and returns the string comparison result of the two passed strings.

OR

Write a program that reads a date as an integer in the format MMDDYYYY. The program will call a function that prints print out the date in the format <Month Name><day>, <year>.

Sample run :

Enter date: 12252019

December 25, 2019

36. What is a package? How is a package different from the module?
37. From the program code given below, identify the parts mentioned below :

1. def processNumber(x):

2. x = 72

3. return x + 3

4.

5. y = 54

6. res = processNumber(y)

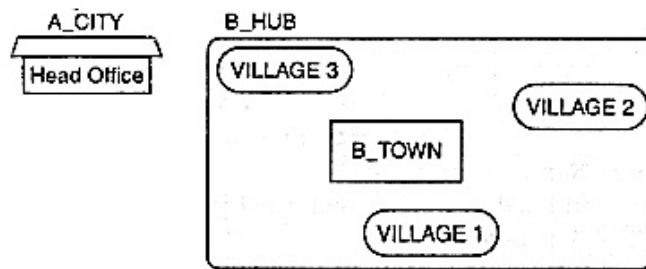
Identify these parts: function header, function call, arguments, parameters, function body, main program.

### Section-III

38. Uplifting Skills Hub India is a knowledge and skill community which has an aim to uplift the standard of knowledge and skills in society. It is planning to set up its training centres in multiple towns and villages pan India with its head offices in the nearest cities. They have created a model of their network with a city, a town, and 3 villages as follows.

As a network consultant, you have to suggest the best network related solutions for their issues/ problems raised in (i) to (iv) keeping in mind the distance between various locations and given parameters.





**The shortest distance between various location:**

|                             |        |
|-----------------------------|--------|
| VILLAGE 1 to B_TOWN         | 2 KM   |
| VILLAGE 2 to B_TOWN         | 1.0 KM |
| VILLAGE 3 to B_TOWN         | 1.5 KM |
| VILLAGE 1 to VILLAGE 2      | 3.5 KM |
| VILLAGE 1 to VILLAGE 3      | 4.5 KM |
| VILLAGE 2 to VILLAGE 3      | 2.5 KM |
| A_CITY Head Office to B_HUB | 25 KM  |

The number of Computers installed at various locations is as follows:

|                    |     |
|--------------------|-----|
| B_TOWN             | 120 |
| VILLAGE 1          | 15  |
| VILLAGE 2          | 10  |
| VILLAGE 3          | 15  |
| A_CITY Head OFFICE | 6   |

**Note:**

In Villages, there are community centers, in which one room has been given as a training center for this organization to install computers.

The organization has got financial support from the government and top IT companies.

- Suggest the most appropriate location of the SERVER in the B\_HUB (out of the 4 locations), to get the best and effective connectivity. Justify your answer.

- ii. Suggest the best-wired medium and draw the cable layout (location to location) to efficiently connect various locations within the B\_HUB.
- iii. Which hardware device will you suggest to connect all the computers within each location of B\_HUB?
- iv. Which service/protocol will be most helpful to conduct live interactions of Experts from Head Office and people at all locations of B\_HUB?

39. Consider the following tables STORE and SUPPLIERS and answer (a) and (b) parts of this question:

**Table: STORE**

| ItemNo | Item              | Scode | Qty | Rate | LastBuy   |
|--------|-------------------|-------|-----|------|-----------|
| 2005   | Sharpener Classic | 23    | 60  | 8    | 31-Jun-09 |
| 2003   | Ball Pen 0.25     | 22    | 50  | 25   | 01-Feb-10 |
| 2002   | Gel Pen Premium   | 21    | 150 | 12   | 24-Feb-10 |
| 2006   | Gel Pen Classic   | 21    | 250 | 20   | 11-Mar-09 |
| 2001   | Eraser Small      | 22    | 220 | 6    | 19-Jan-09 |
| 2004   | Eraser Big        | 22    | 110 | 8    | 02-Dec-09 |
| 2009   | Ball Pen 0.5      | 21    | 180 | 18   | 03-Nov-09 |

**Table: SUPPLIERS**

| Scode | Sname              |
|-------|--------------------|
| 21    | Premium Stationers |
| 23    | Soft Plastics      |
| 22    | Tetra Supply       |

- a. Write SQL commands for the following statements:
  - i. To display details of all the items in the STORE table in ascending order of LastBuy.
  - ii. To display ItemNo and Item name of those items from STORE table whose Rate

is more than 15 Rupees.

- iii. To display the details of those items whose supplier code (Scode) is 22 or Quantity in Store (Qty) is more than 110 from the table Store.
- iv. To display minimum Rate of items for each supplier individually as per Scode from the table STORE.

b. Give the output of the following SQL queries:

- i. SELECT COUNT(DISTINCT Scode) FROM STORE;
- ii. SELECT Rate\* Qty FROM STORE WHERE ItemNo = 2004;
- iii. SELECT Item, Sname FROM STORE S, Suppliers P WHERE S.Scode= P.Scode AND ItemNo = 2006;
- iv. SELECT MAX>LastBuy) FROM STORE;

40. Write a program to perform insert and delete operations on a Queue containing Members details as given in the following definition of itemnode :

|            |         |
|------------|---------|
| MemberNo   | integer |
| MemberName | String  |
| Age        | integer |

OR

Determine the total memory consumption by following the sequence.

List1 = [40,45, "Ekta"]

- i. excluding memory consumption by actual data
- ii. including memory consumption by actual data