

Time : 3 Hours
Maximum Marks : 70

COMPUTER SCIENCE

CBSE

Sample Question Paper

Sample Question Paper (2020)

General Instructions :

- (i) All questions are compulsory.
- (ii) Question paper is divided into 4 sections A, B, C and D.
 - Section A : Unit-1
 - Section B : Unit-2
 - Section C : Unit-3
 - Section D : Unit-4

SECTION-A

Question 1.

- (a) Name the modules to which the following functions belong : 1
- (i) uniform ()
 - (ii) fabs ()
- (b) Write the output from the following code: 1
- ```
i = 1
while true :
 if i%2 == 0 :
 break
 print(i)
 i += 2
```
- (c) Find the errors from the following code: 1
- ```
T=[a,b,c]
print T
```
- (d) What will be print, when following Python code is executed? 2
- ```
class person :
 def __init__(self, id) :
 self.id = id
arjun = person(150)
arjun.__dict__['age'] = 50
print(arjun.age + len(arjun.__dict__))
```
- Justify your answer.

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- (e) What are the possible outcome(s) after executed from the following code ? Also, specify the maximum and minimum values that can be assigned to variable NUM. 2

```
import random
NAV = ["LEFT", "FRONT", "RIGHT", "BACK"];
NUM = random.randint(1, 3)
NAVG = " "
for C in range (NUM, 1, -1) :
```

```
 NAVG = NAVG+NAV[C]
```

```
print (NAVG)
```

- (i) BACKRIGHT 3  
 (ii) BACKRIGHTFRONT  
 (iii) BACK  
 (iv) LEFTFRONTRIGHT

- (f) Find errors in the following codes and write the correct codes.

(i) a = 10  
 while (a < 100):  
 print (a)  
 print ("Over!")

(ii) while x < 10:  
 Print (x)  
 x = x+2

(iii) for p in range (3)  
 for q in range (3)  
 print (p \* q)  
 else:  
 print ("outer loop ends")

- (g) Name the function / method required for 2

- (i) Finding second occurrence of m in madam.  
 (ii) Get the position of an item in the list.  
 (iii) Check if a string contains only alphabets.  
 (iv) Give the total length of the list.

**Question 2.**

- (a) What is the use of lambda keyword in Python ? 1

- (b) Write a statement in Python to perform the following operations : 1

- (i) To open a text file BOOK.TXT in read mode  
 (ii) To open a text file "BOOK.TXT" in write mode.

- (c) How does Python import packages? 1

- (d) What are the following functions used for ? 1

- (i) show ()  
 (ii) title ()

- (e) Explain following 1

- (i) legend ()  
 (ii) xlim ()

- (f) Give difference between an array and a list in Python. 2

- (g) Evaluate following postfix expression using a stack. 28, 8, 4, /, + 2

OR

What are the applications of queue in computer?

## Sample Question Paper

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- (h) Write a Python program that accepts two integers from the user and prints a message saying if first number is divisible by second number or if it is not. 2

OR

Write a function or method to display the area of circle.

- (i) Write a function to write numbers into a binary file and read the same. 3

OR

Convert the following while loop into for loop and also find its output :

i = 10

while(i<=50);

print(i)

i+=8

print("Thankyou")

- (j) Differentiate between run () and timeit (). 4

OR

Write a function to create a text file containing following data:

Neither apple nor pine are in pineapple. Boxing rings are square.

Writers write, but fingers don't fing. Overlook and oversee are opposites. A house can burn up as it burns down. An alarm goes off by going on.

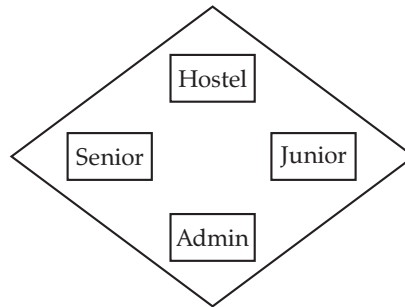
- (i) Read back the entire file content using read() or readlines() and display on the screen.
- (ii) Append more text of your choice in the file and display the content of file with line numbers prefixed to line.
- (iii) Display last line of file.
- (iv) Display first line from 10th character onwards
- (v) Read and display a line from the file. Ask user to provide the line number to be read.

## SECTION-B

## Question 3.

Fill in the blanks from Question 3(a) to 3(d)

- (a) A \_\_\_\_ is a device that forwards packets between networks by processing the routing information included in the packet. 1
- (b) \_\_\_\_ transmission media has the highest transmission speed in a network 1
- (c) Assume that 50 employees are working in an organization. Each employee has been allotted a separate workstation to work. In this way, all computers are connected through the server and all these workstations are distributed over two floors. In each floor, all the computers are connected to a switch. A type of network is used here \_\_\_\_\_. 1
- (d) \_\_\_\_ is the standard web application framework used by Python developers. 1
- (e) Expand the following: 2
  - (i) VoIP
  - (ii) SMTP
  - (iii) TCP/IP
  - (iv) LAN
- (f) What is switching? Differentiate between packet switching and circuit switching techniques? 2
- (g) Write two advantages of 4G over 3G mobile telecommunication technologies in terms of speed and service. 3
- (h) A school in Agra is going to set up the network among its various wings such as Senior, Junior, Admin and Hostel. 4



Following table illustrates the approximate distance between these wings:

| Location From | Location To | Distance |
|---------------|-------------|----------|
| Admin         | Senior      | 100 m    |
| Admin         | Junior      | 200 m    |
| Admin         | Hostel      | 400 m    |
| Senior        | Junior      | 300 m    |
| Senior        | Hostel      | 100 m    |
| Junior        | Hostel      | 450 m    |

Also with the above information, following table illustrates the number of computers that will be installed in each of its wings:

|        |     |
|--------|-----|
| Admin  | 10  |
| Senior | 200 |
| Junior | 100 |
| Hostel | 50  |

- (i) Suggest the topology for networking the computer of all four wings.
- (ii) Which wing should be treated as server and why?
- (iii) Where hub/switch should be placed?
- (iv) Suggest an economical technology to provide Internet accessibility of all wings.

### SECTION-C

#### Question 4.

- (a) What is a primary key? 1
- (b) Which operator is used in query for pattern matching? 1
- (c) Write a SQL query to find the names of employees that begin with 'P'? 1
- (d) What are tables in SQL? 1
- (e) How do you create tables in Django ? 2

OR

What is client-Server Architecture?

- (f) What is the main difference between 'BETWEEN' and 'IN' condition operators? 2
- (g) Consider the following tables SCHOOL and ADMIN and answer following question : 3

## Sample Question Paper

Table : SCHOOL

| CODE | TEACHER      | SUBJECT   | DOJ        | PERIODS | EXPERIENCE |
|------|--------------|-----------|------------|---------|------------|
| 1001 | Ravi Shankar | English   | 12/3/2000  | 24      | 10         |
| 1009 | Priya Rai    | Physics   | 03/09/1998 | 26      | 12         |
| 1203 | Lisa Anand   | English   | 09/04/2000 | 27      | 5          |
| 1045 | Yashraj      | Maths     | 24/08/2000 | 24      | 15         |
| 1123 | Ganan        | Physics   | 16/07/1999 | 28      | 3          |
| 1167 | Harish       | Chemistry | 19/10/1999 | 27      | 5          |
| 1215 | Umesh        | Physics   | 11/05/1998 | 22      | 16         |

Table: ADMIN

| Code | Gender | Designation    |
|------|--------|----------------|
| 1001 | Male   | Vice Principal |
| 1009 | Female | Co-ordinator   |
| 1203 | Female | Co-ordinator   |
| 1045 | Male   | HOD            |
| 1123 | Male   | Senior Teacher |
| 1167 | Male   | Senior Teacher |
| 1215 | Male   | HOD            |

Give the output of the following SQL queries:

- SELECT MAX (EXPERIENCE) FROM SCHOOL;
- SELECT TEACHER FROM SCHOOL WHERE EXPERIENCE > 12 ORDER BY TEACHER;
- SELECT CODE FROM ADMIN WHERE DESIGNATION = "HOD";
- SELECT TEACHER FROM SCHOOL WHERE PERIODS > 27;
- Write SQL queries for (i) to (iv) which are based on the tables CUSTOMER and TRANSACTION. 4

Table : CUSTOMER

| CNO | CNAME        | ADDRESS   |
|-----|--------------|-----------|
| 101 | Richa Jain   | Delhi     |
| 102 | Surbhi Sinha | Chennai   |
| 103 | Lisa Thomas  | Bangalore |
| 104 | Imran Ali    | Delhi     |
| 105 | Roshan Singh | Chennai   |

Table : TRANSACTION

| TRNO | CNO | AMOUNT | TYPE   | DOT        |
|------|-----|--------|--------|------------|
| T001 | 101 | 1500   | Credit | 2017-11-23 |
| T002 | 103 | 2000   | Dedit  | 2017-05-12 |
| T003 | 102 | 3000   | Credit | 2017-06-10 |
| T004 | 103 | 12000  | Credit | 2017-09-12 |
| T005 | 101 | 1000   | Dedit  | 2017-09-05 |

- To display details of all transactions of TYPE Credit from table TRANSACTION.
- To display the CNO and AMOUNT of all Transactions done in the month of September 2017 from table TRANSACTION.
- To display the last date of transaction (DOT) from the table TRANSACTION for the customer having CNO as 103.
- To display all CNO, CNAME and DOT (date of transaction) of those CUSTOMERS from tables CUSTOMER and TRANSACTION who have done transactions more than or equal to 2000.

**SECTION-D****Question 5.**

- (a) Expand the following. 1  
(i) DRM  
(ii) GPL
- (b) Write any two negative impact of technology on society. 1
- (c) Explain e-waste management in India. 2
- (d) What is role of cultural and social attributes in gender inequality ? 2
- (e) Name the composition of e-waste. How does e-waste affect the environment? 2
- (f) How can we prevent credit card fraud? 2

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