

# Sample Question Paper-2

## COMPUTER SCIENCE

Class-XII, Session: 2023-24

SOLVED

Time Allowed: 3 hours

Maximum Marks: 70

### General Instructions:

- (i) Please check this question paper contains 35 questions.
- (ii) The paper is divided into 5 Sections-A, B, C, D and E.
- (iii) Section A, consists of 18 questions (1 to 18). Each question carries 1 Mark.
- (iv) Section B, consists of 7 questions (19 to 25). Each question carries 2 Marks.
- (v) Section C, consists of 5 questions (26 to 30). Each question carries 3 Marks.
- (vi) Section D, consists of 2 questions (31 to 32). Each question carries 4 Marks.
- (vii) Section E, consists of 3 questions (33 to 35). Each question carries 5 Marks.
- (viii) All programming questions are to be answered using Python Language only.

### Section – A

#### 1. State True or False.

In a python if...elif block, the else block is compulsory to write.

[1]

#### 2. Kajal has created a MySQL table storing the details of players. She wants to see the structure of the table with the fields, data type, size and constraints. Which command out of the following she has to use?

- (A) Describe (B) Alter  
(C) Show table (D) None of the above

[1]

#### 3. What will be the output of the following code?

```
2**3**2 + 625**0.5 + 7//2
```

- (A) 542.50 (B) 540.0 (C) 539 (D) 541.0

[1]

#### 4. Write the output of the following code snippet:

```
tup= ('geek', )  
n=5  
for i in range(int(n)):
```

- tup= (tup, )  
print (tup)  
(A) (('geek',), )  
(((('geek',),),), )  
((((('geek',),),),), )  
((((('geek',),),),),), )  
(C) (('geek',), )  
(('geek',), )  
(((('geek',),),), )  
((((('geek',),),),), )  
((((('geek',),),),), )

- (B) ('geek', )  
(((('geek',),),), )  
((((('geek',),),),), )  
((((('geek',),),),), )  
(D) (('geek',), )  
(('geek',), )  
(((('geek',),),), )  
((((('geek',),),),), )  
((((('geek',),),),), )

[1]

#### 5. A table **Product** has 5 columns and 10 rows. Another table **Transaction** has 6 columns and 18 rows. What will be the degree and cardinality of **Product** × **Transaction**?

- (A) Degree : 28 , Cardinality : 10 (B) Degree : 5 , Cardinality : 28  
(C) Degree : 11 , Cardinality : 180 (D) Degree : 30 , Cardinality : 28

[1]

6. Sudhir found that signals send by him to his friend were weak. Which of the following devices he needs to install?  
 (A) NIC (B) RJ45 (C) Modem (D) Repeater [1]
7. What will be the output for the following Python statements?  
`D= {"AMIT":90, "RESHMA":96, "SUKHBIR":92, "JOHN":95}`  
`print("JOHN" in D, 90 in D, sep = "#")`  
 (A) True#False (B) True#True (C) False#True (D) False#False [1]
8. Given a tuple `tup1= (10, 20, 30, 40, 50, 60, 70, 80, 90)`.  
 What will be the output of `print (tup1 [3:7:2])`?  
 (A) (40,50,60,70,80) (B) (40,50,60,70) [1]  
 (C) [40,60] (D) (40,60)
9. Consider a tuple `tup1 = (10, 15, 25, 30)`. Identify the statement that will result in an error.  
 (A) `print(tup1[2])` (B) `tup1[2] = 20` [1]  
 (C) `print(min(tup1))` (D) `print(len(tup1))`
10. Study the following program and select the possible output(s) from the options (A) to (D) following it.  
`import random`  
`X= random.random()`  
`Y= random.randint(0,4)`  
`print int(X), ":", Y+int(X)`  
 (A) 0:0 (B) 1:6 (C) 2:4 (D) 2:3 [1]
11. Fill in the blank:  
 An IP address is of \_\_\_\_\_.  
 (A) 4 bytes (B) 3 bytes (C) 16 bytes (D) 32 bytes [1]
12. Given the following code . What should be filled in the missing blank for proper execution of the code.  
`def square(n): #Function to find the square of the last digit of the argument and return`  
`d=n%10`  
`d=d**2`  
 \_\_\_\_\_ # Missing blank  
 (A) `ret d` (B) `print(n)` (C) `return d` (D) `return n%10` [1]
13. State True or False: EOFError is a kind of Exception. [1]
14. Which of the following statements is correct regarding Alternate key?  
 An Alternate key can be defined as:  
 (A) An attribute which is a primary key (B) An attribute which is not a primary key [1]  
 (C) A candidate key (D) None of these
15. Fill in the blank: A network with all client computer and no server is called \_\_\_\_\_. [1]
16. Which of the following statements opens a binary file "Emp.dat" for adding more records keeping the existing records?  
 (A) `f=open("Emp.dat","w")` (B) `f=openfile("Emp.dat","wb")` [1]  
 (C) `f=open("Emp.dat","ab")` (D) `f=openfile("Emp.dat","r")`

**Assertion and Reason:**

In the following questions, A statement of Assertion (A) is followed by a statement of Reason (R). Mark the correct choice as.

- (A) Both A and R are true and R is the correct explanation of A.  
 (B) Both A and R are true and R is not the correct explanation of A.  
 (C) A is true but R is false.  
 (D) A is false but R is true.

- 17. Assertion (A):** If the arguments in function call statement match the number and order of arguments as defined in the function definition, such arguments are called positional arguments.  
**Reason (R):** During a function call, the argument list first contains default argument(s) followed by positional argument(s). [1]
- 18. Assertion (A):** CSV (Comma Separated Values) is a file format for data storage which looks like a text file.  
**Reason (R):** The information is organized with one record on each line and each field is separated by comma. [1]

## Section – B

- 19. (a)** Write the full forms of the following:  
 (i) SMTP (ii) PPP [2]  
 (b) What is the use of TELNET?  
 OR  
 (a) Rearrange the following terms in increasing order of data transfer rates.  
 Gbps, Mbps, Tbps, Kbps, bps  
 (b) Name any two transmission media best suitable for connecting to hilly areas.
- 20.** Rao has written a code to input a number and check whether it is prime or not. His code is having errors. Rewrite the correct code and underline the corrections made.

```
def prime():
    n=int(input("Enter number to check :: "))
    for i in range (2, n//2):
        if n%i=0:
            print("Number is not prime \n")
            break
        else:
            print("Number is prime \n')
```

- 21.** Write a function that receives two string arguments and checks whether they are same-length strings (returns True in this case otherwise False) [2]

OR

Write a function namely `nthRoot()` that receives two parameters `x` and `n` and return `n`th root of `x` i.e.  $x^{1/n}$   
 The default value of `n` is 2

- 22.** Predict the output of the Python code given below: [2]
- ```
tuple1 = (11, 22, 33, 44, 55, 66)
list1 = list(tuple1)
new_list = []
for i in list1:
    if i%2==0:
        new_list.append(i)
new_tuple = tuple(new_list)
print(new_tuple)
```

- 23.** Write the Python statement for each of the following tasks using BUILT-IN functions/methods only: [2]
- (i) To sort the contents of a list `Lst` in reverse order  
 (ii) To increase the marks of a student by 5, whose data is stored in the following dictionary.  
`StuDict={"Roll":1, "Name": "Susmita", "Marks":25}`

OR

What will be the output of the following program?

```
def increase (x):
    a = 5
    a=a+x
def f():
    return
```

```
a=10
print(a)
a=20
b=5
increase (b)
print(a)
```

24. Sonal needs to display name of teachers, who have "O" as the third character in their name. She wrote the following query. AI

Select name from teacher where name = "\*\*\*O?";

But the query isn't producing the result. Identify the problem.

Then after write a query to change the width of the column NAME to varchar (40) [2]

OR

Consider the structure of table Doctor given below

- Doctor\_id(p)
- Doctor\_Name
- Hospital\_id(F)
- Joining\_Date
- Speciality
- Salary
- Experience.

Write Python code to create the above table.

25. What will be the output of the following Python code?

```
def FunStr(S):
    T = ""
    for i in S:
        if i.isdigit():
            T = T + i
    return T
X = "PYTHON 3.9"
Y = FunStr(x)
print (X, Y, sep="**")
```

[2]

## Section – C

26. Predict the output of the code given below:

```
s="welcome2cs"
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] >= 'n' and s[i] <= 'z'):
        m = m +s[i-1]
    elif (s[i].isupper()):
        m = m + s[i].lower()
    else:
        m = m + '&'
print(m)
```

[3]

27.

Table: STUDENT

| RollNo | Name | Class | DOB | Gender | City | Marks |
|--------|------|-------|-----|--------|------|-------|
|--------|------|-------|-----|--------|------|-------|

|   |         |     |            |   |        |     |
|---|---------|-----|------------|---|--------|-----|
| 1 | Nanda   | X   | 06-06-1995 | M | Agra   | 551 |
| 2 | Saurabh | XII | 07-05-1993 | M | Mumbai | 462 |
| 3 | Sonal   | XI  | 06-05-1994 | F | Delhi  | 400 |
| 4 | Trisla  | XII | 08-08-1995 | F | Mumbai | 450 |
| 5 | Store   | XII | 08-10-1995 | M | Delhi  | 369 |
| 6 | Marisla | XI  | 12-12-1994 | F | Dubai  | 250 |
| 7 | Neha    | X   | 08-12-1995 | F | Moscow | 377 |
| 8 | Nishant | X   | 12-06-1995 | M | Moscow | 489 |

- (i) SELECT COUNT(\*), City FROM STUDENT GROUP BY CITY HAVING COUNT(\*)>1;  
(ii) SELECT MAX(DOB),MIN(DOB) FROM STUDENT;  
(iii) SELECT NAME,GENDER FROM STUDENT WHERE CITY="Delhi"; [3]
28. Write a method COUNTLINES () in Python to read lines from text file 'TESTFILE.TXT' and display the lines which are not starting with any vowel.

Example:

If the file content is as follows:

An apple a day keeps the doctor away.

We all pray for everyone's safety.

A marked difference will come in our country.

The COUNTLINES () function should display the output as:

The number of lines not starting with any vowel - 1 [3]

OR

Write a function ETCOUNT () in Python, which should read each character of a text file "TESTFILE.TXT" and then count and display the count of occurrence of alphabets E and T individually (including small cases e and t too).

Example:

If the file content is as follows:

Today is a pleasant day.

It might rain today.

It is mentioned on weather sites

The ETCOUNT() function should display the output as:

E or e: 6

T or t: 9

29. Consider the table Trip given below:

TABLE: TRIP

| NO | NAME         | TDATE      | KM  | TCODE | NOP |
|----|--------------|------------|-----|-------|-----|
| 11 | Tanish Khan  | 2015-12-13 | 200 | 101   | 32  |
| 13 | Danish Sahai | 2016-06-21 | 100 | 103   | 45  |
| 15 | Ram Kumar    | 2016-02-23 | 350 | 102   | 42  |
| 12 | Fen Shen     | 2016-01-13 | 90  | 102   | 40  |
| 17 | Aan Kumar    | 2015-02-10 | 75  | 104   | 2   |
| 14 | Veena        | 2016-06-28 | 80  | 105   | 4   |
| 16 | Rajpal Kirti | 2016-06-06 | 200 | 101   | 25  |

Note:

- NO is Driver Number
- KM is Kilometre travelled
- NOP is number of travellers travelled in vehicle

- TDATE is Trip Date

Based on the table write SQL queries for the following:

- To display NO, NAME, TDATE from the table TRIP in descending order of NO.
- To display the NAME of the drivers from the table TRIP, who are travelling by transport vehicle with code 101 or 103.
- To display the NO and NAME of those drivers from the table TRIP, who travelled between '2015-02-10' and '2015-04-01'. [3]

30. A list contains following record of a customer:

[Customer\_name, Phone\_number, City]

Write the following user defined functions to perform given operations on the stack named 'status':

- Push\_element()** - To Push an object containing name and Phone number of customers who live in Goa to the stack
- Pop\_element()** - To Pop the objects from the stack and display them. Also, display "Stack Empty" when there are no elements in the stack.

For example:

If the lists of customer details are:

```
[ "Gurdas", "99999999999", "Goa" ]
[ "Julee", "88888888888", "Mumbai" ]
[ "Murugan", "77777777777", "Cochin" ]
[ "Ashmit", "1010101010", "Goa" ]
```

The stack should contain

```
[ "Ashmit", "1010101010" ]
[ "Gurdas", "99999999999" ]
```

The output should be:

```
[ "Ashmit", "1010101010" ]
[ "Gurdas", "99999999999" ]
Stack Empty
```

[4]

## Section – D

31. Write SQL queries for (i) to (iv) based on the table EMPLOYEE and DEPARTMENT given below:

Table: EMPLOYEE

| EMPID | NAME   | DOB         | DEPTID | DESIG       | SALARY |
|-------|--------|-------------|--------|-------------|--------|
| 120   | Alisha | 23-Jan-1978 | D001   | Manager     | 75,000 |
| 123   | Nitin  | 10-OCT-1977 | D002   | AO          | 59,000 |
| 129   | Navjot | 12-Jul-1971 | D003   | Supervisor  | 40,000 |
| 130   | Jimmy  | 30-Dec-1930 | D004   | Sales Rep   |        |
| 131   | Faiz   | 06-Apr-1984 | D001   | Dep Manager | 65,000 |

Table: DEPARTMENT

| DEPTID | DEPTNAME   | FLOORNO |
|--------|------------|---------|
| D001   | Personal   | 4       |
| D002   | Admin      | 10      |
| D003   | Production | 1       |
| D004   | Sales      | 3       |

- To display the average salary of all employees, department wise.
- To display name and respective department name of each employee whose salary is more than 5000.
- To display the name of employees whose salary not known, in alphabetical order.
- To display DEPTID from the table EMPLOYEE without repetition.

[4]

32. Rohit is a computer science student working on a program to add and search records from a csv file stud.csv. The file comprises of : Admno, Sname and Perc of students.

Where

- (a) admno : Admission number integer  
 (b) sname : Student name String  
 (c) perc : Percentage float

Help him in coding the functions :

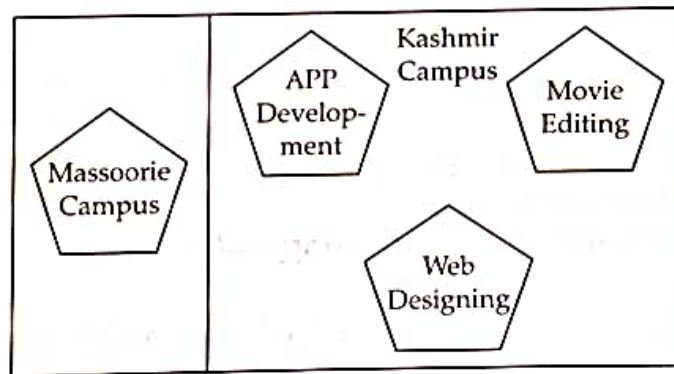
Addrecord() : To add data of 5 new students to the file

Searchrecords(adm) : To search a student whose admission number is given as parameter, and display the record.

[4]

## Section – E

33. MakeInIndia Corporation, an Uttarakhand based IT training company, is planning to set up training centres in various cities in next 2 years. Their first campus is coming up in Kashipur district. At Kashipur campus, they are planning to have 3 different blocks for App development, Web designing and Movie editing. Each block has number of computers, which are required to be connected in a network for communication, data and resource sharing. As a network consultant of this company, you have to suggest the best network related solutions for them for issues/problems raised in question nos. (i) to (v), keeping in mind the distances between various blocks/locations and other given parameters.



Distance between various blocks/locations:

| Block                               | Distance |
|-------------------------------------|----------|
| App development to Web designing    | 28 m     |
| App development to Movie editing    | 55 m     |
| Web designing to Movie editing      | 32 m     |
| Kashipur Campus to Mussoorie Campus | 232 m    |

Number of computers

| Block           | Number of Computers |
|-----------------|---------------------|
| App development | 75                  |
| Web designing   | 50                  |
| Movie editing   | 80                  |

- (i) Suggest the most appropriate block/location to house the SERVER in the Kashipur campus (out of the 3 blocks) to get the best and effective connectivity. Justify your answer.  
 (ii) Suggest a device/software to be installed in the Kashipur Campus to take care of data security.  
 (iii) Suggest the best wired medium and draw the cable layout (Block to Block) to economically connect various blocks within the Kashipur Campus.  
 (iv) Suggest the placement of the following devices with appropriate reasons:

a. Switch / Hub

b. Repeater

- (v) Suggest a protocol that shall be needed to provide Video Conferencing solution between Kashipur Campus and Mussoorie Campus. [5]

34. (i) Differentiate "w" and "a" modes in text file handling.  
(ii) Write a function to write numbers into a binary file and read the same.

OR

- (i) Write any two needs for a data file.  
(ii) Create file phonebook.dat that stores the details in following format:

Name Phone

Jivin 86666000

Kriti 1010101

35. (i) Define the term foreign key with respect to RDBMS  
(ii) Write Python code to insert following records into the OrderDetails table.

Database → sales

Userid → Admin

Password → salAd345

table name → OrderDetails

| ORDNUMB | PARTNUMB | NUMBORD | QUOTPRIC |
|---------|----------|---------|----------|
| 12489   | AX12     | 11      | 14.95    |
| 12491   | BT04     | 1       | 402.99   |
| 12492   | BZ66     | 1       | 311.95   |
| 12498   | CX11     | 2       | 57.95    |

OR

- (i) Categorize the following commands as DDL or DML:  
INSERT, UPDATE, ALTER, DROP  
(ii) Write th Python code to insert the following record in the table Student:

RollNo – integer

Name – string

Class – integer

Marks – integer

Note the following to establish connectivity between Python and MYSQL:

- Username is root
- Password is tiger
- The table exists in a MYSQL database named school.
- The details (RollNo, Name, Class and Marks) are to be accepted from the user.