

Sample Question Paper-4

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:

A tuple can be key of dictionary. [1]

2. Meenakshi wants to remove certain records from a table . The command she has to use is:

- (A) Drop (B) Alter (C) Delete (D) Show databases [1]

3. What will be the value of this expression:

$4/2 ** 3 * 2$

- (A) 16.0 (B) 1.0 (C) 1/4 (D) 1/16 [1]

4. What should appear in the place of the '?' symbol in the table below?

`mystring = "I love Python"`

Expression	Value
<code>Mystring[-1]</code>	n
<code>mystring[-3:]</code>	hon
<code>mystring[5:-4]</code>	?

- (A) e Py (B) ve (C) evol (D) ython [1]

5. Two tables **Orders** (Rows =10, Columns=5) , **Stock**(Rows=9,columns=4) are joined together using a cross join. What will be the cardinality of the resultant?

- (A) Cardinality : 0 (B) Cardinality : 71 (C) Cardinality : 90 (D) Cardinality : 19 [1]

6. Which among the following is the fastest guided transmission media that does not use electricity in communication?

- (A) Twisted pair (B) Telephone cable (C) Fiber optic cable (D) Coaxial cable [1]

7. Given is a Python string.

`message = "My favourite movie is "3 Idiots"`

What will be the output of : `print (message [23:])`?

- (A) 3 Idiots (B) "3 Idiots" [1]

- (C) Syntax error on line 1 (D) Syntax error on line 2 [1]
8. Consider the statements given below and then choose the correct output from the given options:
- ```
txt= "How are you, Ravi?"
x = txt.find(",")
y = txt.find("?")
print(txt[x+2:y])
```
- (A) How are you Ravi (B) How are you  
(C) Ravi (D) Ravi? [1]
9. See the program and answer the question:
- ```
list_items = ["Sachin", "Dravid", "Kapil", "Dhoni", "Sourav"]
tuple_items = ("Sunday", "Monday", "Tuesday", "Wednesday", "Thursday")
list_items[4] = "Harbhajan"
tuple_items[4] = "Friday"
print(list_items[4], tuple_items[4])
```
- What will be the output of this program?
- (A) Sourav Thursday (B) Harbhajan Friday
(C) An error will be reported on line 3 (D) An error will be reported on line 4 [1]
10. What possible output(s) are expected to be displayed on screen at the time of execution of the program from the following code?
- ```
import random
POINTS=[20,40,10,30,15];
POINTS=[30,50,20,40,45];
BEGIN=random.randint(1,3)
LAST=random.randint(2,4)
for C in range(BEGIN, LAST+1):
 print POINTS[C], "#",
```
- (A) 10#40#70# (B) 30#40#50# (C) 20#60#70# (D) 40#50#70# [1]
11. Fill in the blanks:
- The protocol which is the base on which the other application protocols work is \_\_\_\_\_.
- (A) TCP/IP (B) SCP (C) HTTP (D) FTP [1]
12. Given the following code . What should be filled in the missing blank for proper execution of the code?
- ```
import math
def sum(n) : #Function to return the sum of square root and square of the number
    s=math._____ + math._____
    return s
```
- (A) sqrt(n), pow(n,2) (B) root(n), pow(n,2)
(C) sqrt(n), exponent(n,2) (D) None of the above [1]
13. State True or False:
- There can be only a single except block against a try block. [1]
14. Which of the following is a number of tuples or records in a table?
- (A) Domain (B) Cardinality (C) Degree (D) Attribute [1]
15. Fill in the blanks:
- _____ is a communication methodology designed to deliver both voice and multimedia communications over Internet protocol. [1]
16. Which of the following statements correctly explain the function of seek () method?
- (A) Tells the current position within the file.
(B) Determines if you can move the file position or not.
(C) Indicates that the next read or write occurs from that position in a file.
(D) Moves the current file position to a given specified position. [1]

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 correct explanation of A.
 (C) A is true but R is false.
 (D) A is false but R is true.

17. Assertion (A): Interactive mode allows execution of individual statement instantaneously.
 Reason (R): Script mode allows us to write more than one instruction in a file called Python source code file that can be executed. [1]
18. Assertion (A): The while statement executes a block of code repeatedly as long as the control condition of the loop is false.
 Reason (R): If the condition of the while loop is initially false, the body is not executed even once. [1]

Section – B

19. (a) 18 Gbps is equal to how many bits per second?
 (b) Write any two differences between twisted pair cable and coaxial cable. [2]
- OR
- (a) What do you mean by a modem?
 (b) Write the purpose of a router.

20. Mayank has written certain code to work with tuples. He is getting some errors . Find the errors :

```
t1 = (10, 20, 30, 40, 50, 60, 70, 80)
t2 = (90, 100, 110, 120)
t3 = t1 * t2
Print (t5[0:12:3])
t1[2] = 100
```

[2]

21. Write a program that uses a function which takes two string arguments and returns the string comparison result of the two passed strings. [AI] [2]

OR

Write a function namely Buzzcount (Lst) that receives a list of numbers and displays count of numbers that are buzz numbers. (A buzz number is one which either ends with 7 or is divisible by 7.)

22. Find and write the output of the following Python code :

```
Data = ["P", 20, "R", 10, "S", 30]
Times = 0
Alpha = ""
Add = 0
for C in range(1, 6, 2):
    Times = Times + C
    Alpha = Alpha + Data[C-1] + "$"
    Add = Add + Data[C]
    print (Times, Add, Alpha)
```

[2]

23. Write the Python statement for each of the following tasks using BUILT-IN functions/methods only: [2]
- (i) To display only the keys of the dictionary dict1
 (ii) To display the elements of the list Lst from index -10 to -4 in reverse order.

OR

Write the output of the following code snippet

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

24. A table, ITEM has been created in a database with the following field:

ITEMCODE, ITEMNAME, QTY, PRICE

Give the SQL command to add a new field, DISCOUNT (of type integer) to the ITEM table.

Then after write a query to remove the column Qty from the table.

[2]

OR

Differentiate between DDL & DML command. Identify DDL & DML command from the following: (UPDATE, SELECT, ALTER, DROP)

25. What is the output of the following Python code?

```
L = [2, 6, 9, 10]
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="##")
```

[2]

Section – C

26. Write the output of the following Python code:

[AI]

```
i=5
j=7
x=0
i=i+(j-i)
x=j+i
print(x,":",i)
j=j**2
x=j+i
i=i+1
print(i,":",j)
```

[3]

27. Write the output of the queries (i) to (iii) based on the table, Furniture given below:

Table: FURNITURE

FID	NAME	DATEOFPURCHASE	COST	DISCOUNT
B001	Double Bed	03-Jan-2018	45,000	10
T010	Dining Table	10-Mar-2020	51,000	5
B004	Single Bed	19-Jul-20016	22,000	0
C003	Long Back Chair	30-Dec-2016	12,000	3
T006	Console Table	17-Nov-2019	15,000	12
B006	Bunk Bed	01-Jan-2021	28,000	14

(i) SELECT SUM (DISCOUNT) FROM FURNITURE WHERE COST>15000;

(ii) SELECT MAX (DATEOFPURCHASE) FROM FURNITURE;

(iii) SELECT * FROM FURNITURE WHERE DISCOUNT>5 AND FID LIKE " T%'

28. Write a function `countVowels()` to open a text file "Rhymes.txt" and display the number of vowels in it. [3]

OR

Write a function to count the number of lines starting and ending with "a" in a text file "Notes.txt". [3]

29. Consider the table Employee given below:

Table : EMPLOYEE

EMPID	NAME	DOB	DEPTID	DESIG	SALARY
120	Alisha	23-Jan-1979	D001	Manager	75,000
123	Nitin	10-OCT-1977	D001	AO	59,000
129	Navjot	12-Jul-1971	D001	Supervisor	40,000
130	Jimmy	30-Dec-1930	D001	Sales Rep	
131	Faiz	06-Apr-1984	D001	Dep Manager	65,000

Based on the table write SQL queries for the following:

- (i) To display the name of employees whose salary not known, in alphabetical order.
 - (ii) To display DEPTID from the table EMPLOYEE without repetition.
 - (iii) To modify the column Desig and change its width to varchar(25). [3]
30. Write the definition of a user defined function `PushNV(N)` which accepts a list of strings in the parameter `N` and pushes all strings which have no vowels present in it, into a list named `NoVowel`. Also display the contents of the list. [3]

Section – D

31. Write SQL queries for (i) to (iv) based on the table Cabhub given below: [4]

Table: CABHUB

Vcode	VehicleName	Make	Color	Capacity	Charges
100	Innova	Toyota	WHITE	7	15
102	SX4	Suzuki	BLUE	4	14
104	C Class	Mercedes	RED	4	35
105	A-Star	Suzuki	WHITE	3	14
108	Indigo	Tata	SILVER	3	12

- (a) To display the names of all the white coloured vehicles.
 - (b) To display name of vehicle and capacity of vehicles in ascending order of their sitting capacity.
 - (c) Delete the records of vehicles of white colour.
 - (d) Add a column `Pnum` in the table CABHUB with datatype as integer. [4]
32. Suman is a final semester student and has been assigned a project to write functions `Newrecord()` and `Displayrecords()` for working with records of students.
- (i) `Newrecord()` – To accept and add data of a student to a CSV file 'student.csv'. Each record consists of a list with field elements as `StudId`, `Studname` and `Stream` to store Student id, Student name and stream of the student respectively.
 - (ii) `Displayrecords()` – To display the records present in the CSV file named 'student.csv'. Help suman in writing the code. [4]

Section – E

33. ABC is professional consultancy company. The company is planning to set up their new offices in India with its hub at Bengaluru. As a network adviser, you have to understand their requirements and suggest them the best available solutions. Their queries are mentioned as (i) to (v) below: Physical Location of the blocks of ABC. [4]

Human Resource Conference Finance

Block to Block Distances (int Mtr)

Block (From)	Block (To)	Distance
Human Resource	Conference	110
Human Resource	Finance	40
Conference	Finance	80

Expected number of computers to be installed in each block:

Block	Computer
Human Resource	25
Finance	120
Conference	90

- (i) What will be the most appropriate block, where ABC should plan to install their server?
(ii) Which type of topology is best suited for above network?
(iii) What will be the best possible connectivity you will suggest to connect the new setup of offices in Chennai with its London based office.
(iv) Which device will be suggested by you to connect each computer in each of the buildings?
(v) The company wants internet accessibility in all the blocks. What would the suitable and cost-effective technology for that? [5]
34. (i) What happens when we use file open () function in Python?
(ii) Create file phonebook.txt that stores the details in following format:
Name Phone
Jivin 86666000
Kriti 1010101
Obtain the details from the user. [5]

OR

- (i) What is closed attribute of a file object?
(ii) A file phonebook.txt stores the details in the following format:
Name Phone
Jivin 86666000
Kriti 101001
Write a program to edit the phone numbers of "Arvind" in file. If there is no record for "Arvind" report error. [5]
35. (i) Define the term Join with respect to RDBMS. [1]
(ii) Consider the tables Product and Client with structures as follows:
- | Product | Client |
|--------------|--------|
| P_ID | C_ID |
| ProductName | CName |
| Manufacturer | CCity |
| Price | CProd |
- Write Python codes to display the details of products whose price is in range of 50 to 100 (Both values included).
Use the following information for connection.
Host : localhost
Database : cosmetics
Userid : Admin
Password : Admin@123
Table name : Product [5]

OR

- (i) MySQL supports different character sets, which command is used to display all character sets?
(ii) Consider the tables Product and Client with structures as follows:
- | Product | Client |
|--------------|--------|
| P_ID | C_ID |
| ProductName | CName |
| Manufacturer | CCity |
| Price | CProd |
- Write Python code to display the Client Name, City from table Client