

Sample Paper 10
Computer Science (083)
CLASS XII 2024-25

Time: 3 Hours

Max. Marks: 70

General Instructions:

1. This question paper contains 37 questions.
 2. All questions are compulsory. However, internal choices have been provided in some questions. Attempt only one of the choices in such questions
 3. The paper is divided into 5 Sections- A, B, C, D and E.
 4. Section A consists of 21 questions (1 to 21). Each question carries 1 Mark.
 5. Section B consists of 7 questions (22 to 28). Each question carries 2 Marks.
 6. Section C consists of 3 questions (29 to 31). Each question carries 3 Marks.
 7. Section D consists of 4 questions (32 to 35). Each question carries 4 Marks.
 8. Section E consists of 2 questions (36 to 37). Each question carries 5 Marks.
 9. All programming questions are to be answered using Python Language only.
 10. In case of MCQ, text of the correct answer should also be written.
-

SECTION A

1. State True or False
'A dictionary is ordered by index'.
2. The output of `print(math.ceil(17.34))` is
(a) 18 (b) 17
(c) 10 (d) 20
3. The.....clause is used in SQL to specify a range of values.
(a) WHERE (b) DROP
(c) BETWEEN (d) RANGE
4. Two friends have connected their computers but are experiencing weak signals. Which device should they use to improve signal strength?
(a) Repeater (b) Hub
(c) Switch (d) Modem
5. What will be the output of the following code snippet?
phrase = "Database Management"
`print(phrase[-5:-15:-4])`

CLICK HERE TO SEE ANSWERS



6. _____method creates a cursor object while connecting a Python application with a Mysql database.
- (a) connection() (b) connect()
(c) cursor() (d) None of these
7. In which mode is a file opened by default?
- (a) r (b) rw+
(c) w (d) a
8. Which attribute is used to return access mode with that file was opened?
- (a) mode.file (b) mode.file.name
(c) file.mode (d) file.mode.type
9. Identify the option that is not a DDL (Data Definition Language) command:
- (a) ALTER (b) CREATE
(c) DROP (d) DELETE
10. Fill in the blank to finish the code snippet:
- ```
file = open("datafile.txt", "r")
file.seek(30)
data = file.read(20)

print(file.read())
file.close()
```
11. State whether the following statement is True or False:  
The `try` and `except` blocks in Python are used for debugging purposes only.
12. Which module is required to use the mode function?
- (a) math (b) statistics  
(c) random (d) Pandas
13. The.....command can be used to remove all records of a table along with the table structure.
- (a) DELETE TABLE (b) DROP TABLE  
(c) REMOVE TABLE (d) None of these
14. What is the output of the following code?
- ```
a = 5
b = 3
print(a + 10 * 2 + b)
```
- (a) 32 (b) 28
(c) 40 (d) 45



15. Which function is used to generate a sequence of numbers over a period of time?
- (a) range() (b) len()
(c) limit() (d) lim()
16. Which of the following symbol is used in Python for comments?
- (a) \$ (b) @
(c) // (d) #
17. Given a list Lst= [65,182,90,420,20,10]. What will be the correct statement to take out the 3rd element from the list?
- (a) Lst.pop(2) (b) L.find(2)
(c) L.pop(-1) (d) L.del(90)
18. What is the relationship between Primary key, Candidate key, and Alternate key?
- (a) Primary key = Candidate key - Alternate key
(b) Candidate key= Primary key - Alternate key
(c) Alternate key= Primary key+ Candidate key
(d) None of the above
19. The first integrity rule for relational databases ensures that _____
- (a) Primary key is unique
(b) Foreign key is unique
(c) Primary key is unique and NOT NULL
(d) There is only one candidate key

Directions (Q.Nos. 20-21) are Assertion and Reason based questions.

20. **Assertion (A)** : User-defined functions must stay in a Python module.

Reason (R) : Each user-defined function must stay in a module ,which is linked to a folder where all the user defined functions of the module stay.

- (a) Both A and R are true and R is the correct explanation for A.
(b) Both A and R are true but R is not the correct explanation for A.
(c) A is true but R is false.
(d) A is false but R is true.

21. **Assertion (A)** : Python supports addition of data in file , preserving the previous data.

Reason (R) : The write mode erases all previous data of a pre-existing file.

- (a) Both A and R are true and R is the correct explanation for A.
(b) Both A and R are true but R is not the correct explanation for A.
(c) A is true but R is false.
(d) A is false but R is true.

CLICK HERE TO SEE ANSWERS



SECTION B

22. Write the corresponding Python expression for the following mathematical expression.

(i) $z = \frac{a}{a} + b - d^2$

(ii) $z = x^2 + y^3$

23. (a) Identify which of the following identifiers are valid. If any are invalid, provide the reason..

(i) name_1 (ii) _SUM

(iii) \$Sum (iv) num ^ 2

(b) Find the output of the following code

```
i=1
while (i<4):
    print(i)
    i=i*2
```

24. Mr. GopiNath, Associate Manager of Unit Nations corporate, recently discovered that the communication between his company's accounts office and HR office is extremely slow, and signals drop quite frequently. These offices are 120 meters apart and connected by an Ethernet cable.

(i) Suggest him a device which can be installed in between the office for smooth communication.

(ii) What type of network is formed by having this kind of connectivity out of LAN, MAN and WAN?

or

Define hub and write its functions and types.

25. Differentiate between char(n) and varchar(n) data types with respect to databases.

26. (a) Mention any two advantages of E-mail over conventional, mail.

(b) Mr. Lal owns a factory which manufactures automobile spare parts. Suggest him the advantages of having a web page for his factory

27. Name the tokens that are available in Python.

or

Find the syntax error in the following program and underline after correct them.

```
90 = w
while(w > 60)
    print(w)
    w = w - 50
```

28. Explain the use of ORDER BY clause.

or

What are DDL and DML?

CLICK HERE TO INSTALL NODIA APP



SECTION C

29. Write a method `countFile()` that counts and displays the number of lines starting with the word "FILE" (considering both lowercase and uppercase) in the text file "start.txt".

e.g. If the file "start.txt" contains the following lines:

Get the data value to be deleted,

Open the file for reading from it.

Read the complete file into a list

Delete the data from the list

Open the file

Open same file for writing into it

Write the modified list into file.

Close the file.

The method should display

Total lines started with word 'FILE' is/are: 0

or

Define a function that takes a sentence as input and displays a list of words that end with a lowercase vowel and a list of words that end with a lowercase consonant.

30. Write the Push operation for a stack that stores person names. Ensure that the names only accept characters, spaces, and periods (.), excluding digits. Assume that `Pname` is an instance attribute of the class.

or

Determine the final contents of a stack that processes the following tokens. Assume that an operand is pushed onto the stack, and a binary operator pops two operands from the stack, performs the operation, and then pushes the result back onto the stack..

(100, 8, 3, *, 50, 2, +, +, *)

31. Write a program that counts how often each element appears in a list provided by the user.

or

A user-defined method to open the text file "Author.txt" and display the lines that contain an even number of words.

```
def evenwords():
    f=open("Author.txt")
    ln=f.readlines()
    for line in ln:
        linex=.....// Statement
        if len(linex)%2==0:
            print(line)
    f.close()
```

- How is `readline()` method different from `readlines()` method in Python?
- Write the use of the reader object in csv file operations.
- Fill the blank as marked statement.

Continue on next page.....

CLICK HERE TO SEE ANSWERS



SECTION D

32. (a) Write a Python program to merge the following dictionaries into a new one:

```
d1 = {'X': 15, 'Y': 25}
d2 = {'Z': 35, 'W': 45}
d3 = {'P': 55, 'Q': 65}
```

- (b) Consider the table MobileStock with following fields

M_Id, M_Name, M_Qty, M_Supplier

Write the Python code to fetch all records with fields M_Id, M_Name and M_Supplier from database Mobile.

or

- (a) Sohan has a list containing 8 integers as marks of subject Science. You need to help him to create a program with separate user defined function to perform the following operations based on the list.

- (i) Push those marks into a stack which are greater than 75.
(ii) Pop and display the content of the stack.

Simple Input

Marks = [75, 80, 56, 90, 45, 62, 76, 72]

Sample Output

80 90 76

- (b) Consider the following table Traders with following fields

TCode	TName	City
T01	Electronic Sales	Mumbai
T03	Busy Store Corp	Delhi
T02	Disp House Inc	Chennai

Write Python code to display the names of those traders who are either from Delhi or from Mumbai.

33. What is difference between tell() and seek() methods?

A Binary file "lottery.dat" stores details of lottery ticket holders . The file stores the following details :

TicketNo State Type Prizemoney

Write a program using two functions to operate the file data.

- (a) AddBuyers(State) : To accept more ticket details and store them into the file only if the ticket is not from state passed as parameter to the function.
(b) TicketSearch(tid) : To open the file "lottery.dot" and display details of the ticket whose id is supplied as the parameter to the function.

34. Consider the tables FAMILY and Occupation:

TABLE FAMILY					
No	Name	Female Members	Male Members	Income	Occup-ationId
1	Mishra	3	2	7000	O1
2	Gupta	4	1	50000	O2
3	Khan	6	3	8000	O2
4	Chaddha	2	2	25000	O1

CLICK HERE TO INSTALL NODIA APP



5	Yadav	7	2	20000	O3
6	Joshi	3	2	14000	O2
7	Maurya	6	3	5000	O1
8	Rao	5	2	10000	O3

Table : OCCUPATION	
OccupationId	Type
O1	Service
O2	Business
O3	Mixed

- (a) To display Family name , corresponding occupation and income where male members are more than 2.
- (b) Write SQL queries for statements (i) to (iv) based on tables FAMILY and Occupation.
 - (i) To select all the information of family, whose Occupation is Service.
 - (ii) To list the name of family, where female members are more than 3.
 - (iii) To list all names of family with income in ascending order.
 - (iv) To count the number of family, whose income is less than 10000.

35. Study the following tables DOCTOR and SALARY and write SQL commands for the questions (i) to (iv).

TABLE: DOCTOR				
ID	NAME	DEPT	SEX	EXPER-IENCE
101	John	ENT	M	12
104	Smith	ORTHOPEDIC	M	5
107	George	CARDIOLOGY	M	10
114	Lara	SKIN	F	3
109	K George	MEDICINE	F	9
105	Johnson	ORTHOPEDIC	M	10
117	Lucy	ENT	F	3
111	Bill	MEDICINE	F	12
130	Morphy	ORTHOPEDIC	M	15

TABLE: SALARY			
ID	BASIC	ALLOWANCE	CONSULTATION
101	12000	1000	300
104	23000	2300	500
107	32000	4000	500
114	12000	5200	100
109	42000	1700	200
105	18900	1690	300
130	21700	2600	300



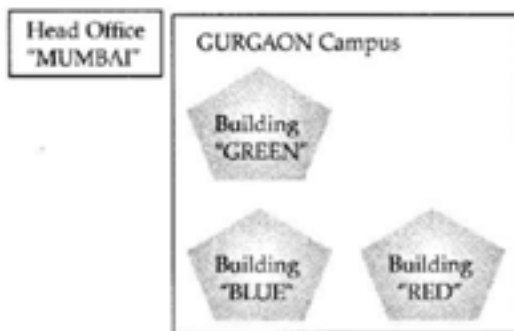
- (i) Display NAME of all doctors who are in MEDICINE department having more than 10yrs experience from the table DOCTOR.
- (ii) Display the average salary of all doctors working in ENT department using the tables DOCTOR and SALARY. $SALARY = BASIC + ALLOWANCE$.
- (iii) Display the minimum ALLOWANCE of female doctors.
- (iv) Display the highest consultation fee among all male doctors.

or

Write the command to change the data type of consultation to double(8,3).

SECTION E

- 36.** Workalot Consultants are establishing a secure network for their office campus in Gurgaon to support their daily office and web-based activities. They plan to set up connectivity between three buildings on the campus and the head office located in Mumbai. Please answer the questions (i) to (v) after reviewing the building positions and other details provided below.



Distance between various buildings

Building GREEN to Building RED	110 m
Building GREEN to Building BLUE	45 m
Building BLUE to Building RED	65 m
Gurgaon Campus to Head Office	1760 km

Number of computers

Building GREEN	32
Building RED	150
Building BLUE	45
Head Office	10

- (i) Suggest the most suitable place (i.e. building) to house the server of this organisation. Also, give a reason to justify your suggested location.
- (ii) Suggest a cable layout of connections between the buildings inside the campus.
- (iii) Suggest the placement of the following devices with justification :
 - (a) Switch

CLICK HERE TO INSTALL NODIA APP



- (b) Repeater
 (iv) Write the use of Modem in a network.
 (v) What is the use of firewall in network?

37. Consider the following table FLIGHTS :

TABLE : FLIGHTS				
FL_NO	STARTING	ENDING	NO_FLIGHT	NO_STOPS
IC301	MUMBAI	DELHI	8	0
IC799	BENGALURU	DELHI	2	1
MC101	INDORE	MUMBAI	3	0
IC302	DELHI	MUMBAI	8	0
AB812	KANPUR	BENGA- LURU	3	1
IC899	MUMBAI	KOCHI	1	4
AM501	DELHI	TRIVAN- DRUM	1	5
MU499	MUMBAI	MADRAS	3	3
IC701	DELHI	AHME- DABAD	4	0

(i) The command to create the table was written as :

```
Create table FLIGHTS( FL_NO integer, STARTING char(20), ENDING char(30), NO_FLIGHT integer, NO_STOPS integer);
```

What is wrong with command ?

(ii) What is the cardinality of the table ?

(iii) Which functions will be used to :

- (a) Display total number of flights .
 (b) Display number of flights whose FL_NO starts with "IC"

or

(option for part (iii) only)

Write function names to :

- (a) Show the average Number of stops.
 (b) Show the maximum number of stops.

END

[CLICK HERE TO SEE ANSWERS](#)

