



विद्या सर्वार्थ साधिका

**ANANDALAYA**  
**PRE-BOARD EXAMINATION**  
Class : XII

Subject: Computer Science (083)  
Date : 26-12-2023

MM :70  
Time: 3 Hrs.

**General Instructions:**

1. This question paper contains five sections, Section A to E.
2. All questions are compulsory.
3. Section A has 18 questions carrying 01 mark each.
4. Section B has 07 Very Short Answer type questions carrying 02 marks each.
5. Section C has 05 Short Answer type questions carrying 03 marks each.
6. Section D has 03 Long Answer type questions carrying 05 marks each.
7. Section E has 02 questions carrying 04 marks each. One internal choice is given in Q34 against part iii only.
8. All programming questions are to be answered using Python Language only.

**SECTION-A**

1. State True or False. (1)  
The default extension of a python file is .py.
2. In a Python program, a control structure: (1)  
(A) Defines program-specific data structures  
(B) Directs the order of execution of the statements in the program  
(C) Dictates what happens before the program starts and after it terminates  
(D) None of the above
3. Which one of the following is a valid Python if statement: (1)  
(A) if x>=9 : (B) if x >= 9) (C) if (x => 9) (D) if x >= 9
4. Which of the following is/are compile time errors? (1)  
(A) Syntax error (B) Semantic error (C) (A) and (B) both (D) None of these
5. Given a tuple tup1= (10, 20, 30, 40, 50, 60, 70, 80, 90). (1)  
What will be the output of print (tup1 [3:7:2])?  
(A) (40,50,60,70,80) (B) (40,50,60,70) (C) [40,60] (D) (40,60)
6. What will be output of this expression? (1)  
'p' + 'q'  
(A) pq (B) rs (C) pqrs (D) pq12
7. Fill in the blank (1)  
For a function header as follows:  
def Calc(X, Y=20):  
\_\_\_\_\_ call statement will give an Error?  
(A) Calc(15,25) (B) Calc(X=15,Y=25) (C) Calc(Y=25) (D) Calc(X=25)
8. Which command is used to change some values in existing rows? (1)  
(A) UPDATE (B) INSERT (C) ALTER (D) ORDER
9. Find the invalid identifier from the following. (1)  
(A) name (B) break (C) section (D) mark12
10. Fill in the blank (1)  
A RDBMS must comply with at least \_\_\_\_\_ rules.  
(A) 4 (B) 5 (C) 6 (D) 7
11. Which of the following is not a correct Python statement to open a text file "Notes.txt" to write content into it? (1)

- (A) F = open('Notes.txt', 'w') (B) F = open('Notes.txt', 'a')  
(C) F = open ('Notes.txt', 'A') (D) F = open('Notes.txt', 'w+')

12. Consider the following statement: (1)  
SELECT \* FROM product ORDER BY rate \_\_\_\_\_, item\_name \_\_\_\_\_.  
Which of the following option should be used to display the 'rate' from greater to smaller and 'name' in alphabetical order?  
(A) ASC, DESC (B) DESC, ASC  
(C) Descending, Ascending (D) Ascending, Descending
13. Fill in the blank (1)  
A network with all client computers and no server is called\_\_\_\_\_.  
(A) Networking (B) Peer to Peer network  
(C) Client Server network (D) Any of them
14. Name the module that implements binary protocols for serializing and de-serializing a Python object structure. (1)  
(A) pickle module (B) unpickle module  
(C) math module (D) random module
15. Mandatory arguments required to connect any database from Python (1)  
(A) Username, Password, Hostname, Database Name, Port.  
(B) Username, Password, Hostname.  
(C) Username, Password, Hostname, Database Name.  
(D) Username, Password, Hostname, Port.
16. Which method of cursor class is used to fetch limited rows from the table? (1)  
(A) cursor.fetchsize(SIZE) (B) cursor.fetchmany(SIZE)  
(C) cursor.fetchall(SIZE) (D) cursor.fetchonly(SIZE)

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):** A function is a block of organized and reusable code that is used to perform a single, related action. (1)  
**Reason (R):** Function provides better modularity for your application and a high degree of code reusability.
18. **Assertion (A):** Text file stores information in ASCII or unicode characters. (1)  
**Reason (R):** In text file, there is no delimiter for a line.

### SECTION-B

19. Rewrite the following code in Python after removing all syntax error(s). Underline each correction done in the code. (2)  
Value=30  
for val in range(0,Value)  
    if val%4==0  
        print (val\*4)  
    else if val%5==0:  
        print (val+3)  
    else  
        print(val+10)
20. Rearrange the following terms in increasing order of data transfer rates. (2)  
Gbps, Mbps, Tbps, Kbps, bps

OR

Name any two transmission media best suitable for connecting to hilly areas.

21. (a) Consider following list for python language (1)

L=[13, 3.45, "Tree", 'Amar', [10, 8.91, "Apple"], 456]

**The output of L[-2] will be**

- (b) What will be the output of the following program? (1)

```
a=20
b=5
def increase (x):
    global a
    a=a+x
    print(a)
increase (b)
print(a)
```

22. Observe the following table carefully and write the names of the most appropriate columns, which can be considered as (i) candidate keys and (ii) primary key (2)

Id	Product	Qty	Price	Transaction Date
101	Plastic Folder12”	100	3400	2014-12-14
104	Pen stand standard	200	4500	2015-01-31
105	Stapler Medium	250	1200	2015-02-28
109	Punching Machine Big	200	1400	2015-03-12
103	Stapler Mini	100	1500	2015-02-02

23. (a) When a user browses a website, the web server sends a text file to the web browser. (2)

What is the name of this?

(b) What is the purpose of server in a network?

24. What possible output(s) are expected to be displayed on screen at the time of execution of the program from the following code? Also specify the maximum values that can be assigned to each of the variables FROM and TO. (2)

```
import random
AR=[20,30,40,50,60,70]
FROM=random.randint(1,3)
TO=random.randint(2,4)
for K in range(FROM,TO+1):
    print (AR[K],end="# ")
```

(i) 10#40#70# (ii) 30#40#50# (iii) 50#60#70# (iv) 40#50#70#

**OR**

What will be the output of the following Python code? (2)

```
V = 25
def Fun(Ch):
    V=50
    print(V, end=Ch)
    V *= 2
    print(V, end=Ch)
    print (V, end="*")
Fun("!")
print(V)
```

25. What is the use of wildcard ? (2)

**OR**

Consider the structure of table Doctor given below, Write Python code to create the above table.

```
Doctor_id(p)
Doctor_Name
```

Hospital\_id(F)  
 Joining\_Date  
 Speciality  
 Salary  
 Experience.

**SECTION-C**

26. (a) Consider the following tables and give output of the query given below. (1)

Table: TRAINS

TNO	TNAME	START	END
11096	Ahimsa Express	Pune Junction	Ahmedabad Junction
12015	Ajmer Shatabdi	New Delhi	Ajmer Junction
1651	Pune Hbj Special	Pune Junction	Habibganj
13005	Amritsar Mail	Howrah Junction	Amritsar Junction
12002	Bhopal Shatabdi	New Delhi	Habibganj
12417	Prayag Raj Express	Allahabad Junction	New Delhi
14673	Sealdah Express	Jaynagar	Amritsar Junction
12314	Sealdah Rajdhani	New Delhi	Sealdah
12498	Shana Punjab	Amritsar Junction	New Delhi
12451	Shram Shakti Express	Kanpur Central	New Delhi
12030	Swarna Shatabdi	Amritsar Junction	New Delhi

Table: PASSENGERS

PNR	TNO	PNAME	GENDER	AGE	TRAVELDATE
P001	13005	R N AGRAWAL	MALE	45	2018-12-25
P002	12015	P TIWARY	MALE	28	2018-11-10
P003	12015	S TIWARY	FEMALE	22	2018-11-10
P004	12030	S K SAXENA	MALE	42	2018-10-12
P005	12030	S SAXENA	FEMALE	35	2018-10-12
P006	12030	P SAXENA	FEMALE	12	2018-10-12
P007	13005	N S SINGH	MALE	52	2018-05-09
P008	12030	J K SINGH	MALE	65	2018-05-09
P009	12030	R SHARMA	FEMALE	58	2018-05-09

SELECT END, COUNT(\*) FROM TRAIN GROUP BY END HAVING COUNT (\*) > 1;

(b) Consider the following tables School and Admin and give the output of the following SQL queries: (2)

- (I) Select Designation Count (\*) From Admin Group By Designation Having Count (\*) <2;
- (II) SELECT max (EXPERIENCE) FROM SCHOOL;
- (III) SELECT TEACHER FROM SCHOOL WHERE EXPERIENCE >12 ORDER BY TEACHER;
- (IV) SELECT COUNT (\*), GENDER FROM ADMIN GROUP BY GENDER;

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	LIS ANAND	ENGLISH	09/04/2000	27	5
1045	YASHRAJ	MATHS	24/8/2000	24	15
1123	GANAN	PHYSICS	16/7/1999	28	3
1167	HARISH B	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	COORDINATOR
1203	FEMALE	COORDINATOR

1045	MALE	HOD
1123	MALE	SENIOR TEACHER
1167	MALE	SENIOR TEACHER
1215	MALE	HOD

27. Write a method/function DISPLAYWORDS() in python to read lines from a text file STORY.TXT, and display those words, which are less than 4 characters. (3)

OR

Write a function CountHisHer() in Python which reads the contents of a text file "Story.txt" and counts the words His and Her (not case sensitive)

28. (a) Write SQL queries for (i) to (ii) based on the table EMPLOYEE and DEPARTMENT given below: (2)

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

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

- (b) Which clause is used in select statement, to remove the duplicate rows of the table? (1)

29. Write the definition of a method ZeroEnding (SCORES) to add all those values in the list of SCORES, which are ending with zero (0) and display the sum. (3)

For example:

If the SCORES contain [200, 456, 300, 100, 234, 678]

The sum should be displayed as 600

30. Write a function to push any student's information to stack. (3)

OR

Write a program to input n numbers and to search any number from the list.

### SECTION-D

31. Perfect Edu Services Ltd. is an educational organization. It is planning to setup its India campus at Karnataka with its head office at Delhi. The Karnataka Campus has 4 main buildings – ADMIN, ENGINEERING, BUSINESS and MEDIA. (5)

You as a network expert have to suggest the best network related solutions for their problems raised in (i) to (v), keeping in mind the distances between the buildings and other given parameters.

Shortest distances between various buildings:

Admin to Engineering	55 mt
Admin to Business	90 mt
Admin to Media	90 mt
Engineering to Business	55 mt
Engineering to Media	90 mt

Business to Media	45 mt
Delhi Head office to Karnataka Campus	2175 km

Number of computers installed at various buildings are as follows:

Admin	110
Engineering	75
Business	40
Media	12
Delhi Head office	20

1. Suggest the most appropriate location of the server inside the Karnataka campus.
  2. Draw the cable layout to efficiently connect various buildings within the Karnataka campus for connecting the computers.
  3. Which hardware device will you suggest to be procured by the company to be installed to protect and control the internet uses within the campus?
  4. Which of the following will you suggest to establish the online face to face communication between the people in the admin office of Karnataka campus and Delhi Head office.
  5. The organization is planning to link its sale counter situated in various part of the same city. Which type of network out of LAN, WAN, MAN will be formed?
32. (a) What does the following code print? (3)
- ```

for i in range ( 1 , 10 ):
    for j in range ( 1 , 10 ):
        print(i * j,)
        print()

```
- (b) Write SQL Query create the table Employee with the following Specification. (2)
- ```

Emp_Id (index)
Emp_name
Dept
Age.

```

**OR**

- (a) Give the output of following with justification. (3)
- ```

x = 3
x += x-x
print(x)

```
- (b) Write Python code to create a table Location with following fields (2)
- ```

id → id of the location
bldg_code → code of the building
room → Type of rooms
capacity → capacity of the room

```
33. (a) Write the full form of CSV. (1)
- (b) Write a function AMCount() in Python, which should read each character of a text file STORY.TXT, should count and display the occurrence of alphabets A and M (including small cases a and m too). (4)
- Example:
- If the file content is as follows:
- Updated information As simplified by official websites.*
- The AMCount() function should display the output as:
- ```

A or a:4
M or m:2

```

**OR**

- (a) Write any two needs for a data file. (1)
- (b) A file sports.dat contains information about a formal Event Participant. Write a function that would read contents from file sports.dat and creates a file named Athletics.dat copying only those records from sports.dat where the event name is "Athletics" A. (4)

## SECTION-E

34. A departmental store MyStore is considering to maintain their inventory using SQL to store the data. As a database administrator, Abhay has decided that:

- Name of the database - mystore
- Name of the table - STORE
- The attributes of STORE are as follows:
- 

ItemNo- numeric

ItemName - character of size 20

Scode - numeric

Quantity – numeric

Table : STORE

| ItemNo | ItemName          | Scode | Quantity |
|--------|-------------------|-------|----------|
| 2005   | Sharpener Classic | 23    | 60       |
| 2003   | Ball Pen 0.25     | 22    | 50       |
| 2002   | Get Pen Premium   | 21    | 150      |
| 2006   | Get Pen Classic   | 21    | 250      |
| 2001   | Eraser Small      | 22    | 220      |
| 2004   | Eraser Big        | 22    | 110      |
| 2009   | Ball Pen 0.5      | 21    | 180      |

- (i) Identify the attribute best suitable to be declared as a primary key. (1)
- (ii) Write the degree and cardinality of the table STORE. (1)
- (iii) Write the commands to : (2)
- (a) Insert the following data into the attributes Item No, ItemName and SCode respectively in the given table STORE Item No = 2010, ItemName = "Note Book" and Scode = 25
- (b) remove the table STORE from the database MyStore.

OR (Option for part iii only)

- (iii) Write the query to : (2)
- (a) display the structure of the table STORE, i.e, name of the attributes and their respective data types that he has used in the table.
- (b) to display the name of all the items which have quantity less than 100

35. Anubhav has written the following code in Python to create a binary file STUDENT.DAT to add records and to count the number of students who have scored marks above 75. Help him complete the code based on the given requirements.

```
import pickle
def AddStudents ( ):
    _____ #1 statement to open the binary file to write data
    while True:
        Rno = int (input("Rno:"))
        Name = input ("Name: ")
        Percent = float (input ("Percent: "))
        L = [Rno, Name, Percent]
        _____ #2 statement to write the list L into the file
        Choice = input ("enter more (y/n): ")
        if Choice in "nN":
            break
    F.close( )
```

```

def GetStudents ( ):
    Total = 0
    Count-rec = 0
    Count-above75 = 0
    with open ("STUDENT.DAT", "rb") as F:
        while True:
            try:
                _____ #3 statement to read from the file
                Count-rec+=1
                Total+=R[2]
                if R [2] > 75:
                    print (R [1], "has percent = ", R [2])
                    Count-above-75+=1
            except:
                break
            if Count-above-75==0:
                print ("There is no student who has percentage more
  than 75")
                average=Total/Count-rec
                print ("average percent of class = ", average)

```

AddStudents ( )

GetStudents ( )

- (I) which command should be given (marked as # 1 in the Python code) to open the data file. (1)
- (II) Which commands is used to write the list L into the binary file, STUDENT.DAT? (1)  
(marked as #2 in the Python code)
- (III) Which command is used to read each record from the binary file STUDENT.DAT? (2)  
(marked as #3 in the Python code). What is the function of seek() method?