Navodaya Vidyalaya Samiti

2nd Pre-Board Examination (2022-23)
Computer Science (083)

Time: 3:00 Hours   **Class XII**   Max Marks: 70

General Instructions:

1. This question paper contains five sections, Section A to E.
2. All questions are compulsory.
3. Section A have 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 Q 35 against part C only.
8. All programming questions are to be answered using Python Language only.

SECTION A

1. Which of the following expressions results in error?   1
   a) float('12')   b) int('12')   c) float('12.5')   d) int('12.5')

2. Evaluate the expression given below if X=16 and Y=15.   1
   X%Y//X
   (a) 0.0   b) 0   c) 1.0   d) 1

3. What is the correct form of declaration of dictionary?   1
   a. Month = {1;'January', 2;'February', 3;'March', 4;'April'}
   b. Month = {1:'January', 2:'February', 3:'March', 4:'April'}
   c. Month = [1:'January', 2:'February', 3:'March', 4:'April']
   d. Month = {1'January', 2'February', 3'March', 4'April'}

4. Consider the given expression: 1

   not False and False or True

   Which of the following will be correct output if the given expression is evaluated?
   a) True   b) False   c) None   d) Null

5. Select the correct output of the code: 1
   Str1 = "Jawahar Navodaya Selection Test - 2023"
   Str1 = Str1.split('2')
   Str2 = Str1[0] + ". " + Str1[1] + ". " + Str1[2]
   print (Str2)

   a) Jawahar Navodaya Selection Test - . 0. 3   b) Jawahar Navodaya Selection Test - . 0. 2023
   c) 0. 0. 3   d) Jawahar.0.3

6. Which of the following function do you use to write data in binary format?   1

   (a) seek()   (b) dump()   (c) load()   (d) DUMP

1

7. Fill in the blank: 1

    The SQL keyword _____ is used in SQL expressions to select based on patterns.

    a) BETWEEN   b) LIKE   c) EXISTS   d) DISTINCT

8. Which of the following queries contains as error? 1

    a) Select * from emp where empid=1003;
    b) Select empid from emp where empid=1006;
    c) Select empid from emp;
    d) Select empid where empid=1009 and lastname='Sunny';

9. Which of the following statement(s) would give an error after executing the following code? 1

    edu="Education is the Most Powerful Weapon "   # Statement 1
    print(edu)   # Statement 2
    edu="Thank you"   # Statement 3
    edu[0]= 'Examination-2023'   # Statement 4
    edu=edu+"Thank you"   # Statement 5

    a) Statement 1   b) Statement 2   c) Statement 4   d) Statement 4 and 5

10. To fetch multiple records from the resultset, you may use <cursor>. _____ mehtod. 1

    a) fetch()   b) fetchmany()   c) fetchmultiple()   d) fetchall()

11 Which function is used to read a single line from file? 1

    a) readline()   b) READLINE()   c) readlines()   d) READLINES()

12 Which of the following is not a legal constraint for a CREATE TABLE command? 1

    a) Primary Key   b) Foreign Key   c) Unique   d) Distinct

13 What is Netizen? 1

14 What will the following expression be evaluated to in Python? 1
    print(36.0 / 8 + (8 + 3.0))

    (a) 15.0   (b)15   (c) 15.50   (d) 15.5

15 Write a query to extract day(i.e Tuesday) from a given datetime value '2023-01-17 10:20:30' 1
    a) SELECT DAY('2023-01-17 10:20:30');
    b) SELECT DAYNAME('2023-01-17 10:20:30');
    c) SELECT WEEKDAY('2023-01-17 10:20:30');
    d) SELECT WEEKDAYNAME('2023-01-17 10:20:30');

16 What is result set and connection in term of python connectivity? 1

    Q17 and 18 are ASSERTION AND REASONING based questions. Mark the correct choice as
    (a) Both A and R are true and R is the correct explanation for A
    (b) Both A and R are true and R is not the correct explanation for A
    (c) A is True but R is False
    (d) A is false but R is True

17   **Assertion (A):** The open() function is used to open a data file in a program through 1
                 a file-object(a file handler)
    Reasoning (R): The tell() function returns the file pointer at desired location.

18 **Assertion (A):** Every open file maintains a file pointer to determine and control the   1
                    position of read or write operation in file.
    Reason (R): The seek() function places the file pointer at specified position.

19 Abhishek has written a code python. His code is having errors. Rewrite the correct   2
    code and underline the corrections made.
    Num=30
    for i in Range(0,Num):
       if i%4==0:
          print(i*4)
       Elseif i%5==0:
          Print(i+3)
       else:
          print(I+10)

20 Write two points of difference between Message Switching and Packet Switching.   2

OR

    Write two points of difference between Client-Side Scripting and Server-Side Scripting.

21 (a) Given is a Python string declaration: 2
            NVS="Jawahar Navodaya Selection Test-2023"
            Write the output of: print(NVS[:9:-2])

    (b) Write the output of the code given below:
        student_dict = {"name": "Sanjay", "age": 14}
        student_dict['age'] = 17
        student_dict['address'] = "Kaithal"
        print(student_dict.values())

22 Explain the Key Constraints and their importance in MYSQL.   2

23 (a) Write the full forms of the following: 2
       (i) TCP/IP   (ii) GPRS

    (b) What is the difference between Radio wave and Micro wave?

24 Predict the output of the Python code given below: 2

        def Output (P,Q=30):
            P=P+Q
            Q=P-Q
            print(P,"-",Q)
        R=150
        S=100
        R=Output(R,S)
        print(R,"@",S)
        S=Output(S)

OR

    Predict the output of the Python code given below:

    Marks = (90, 23, 89, 32, 95 ,45)
    List1 =list(Marks)
    Success = []

                                                        P.T.O.

```
Unsuccess=[]
for i in List1:
    if i>35:
        Success.append(i)
    else:
        Unsuccess.append(i)
S_Marks = tuple(Success)
U_Marks = tuple(Unsuccess)
print("List of Pass Student is",S_Marks)
print("List of Student, who need to retry is",U_Marks)
```

25. a) Differentiate between delete and drop command in SQL with appropriate example.   2

<p align="center">OR</p>

b) What is DDL and DML Command in SQL. Define and give atleast three example of each type

SECTION C

26.   (a) Consider the following tables – Student and Teacher: 1+2

Student

S_ID	S_Name	Class
S101	Abhishek	XI
S102	Abhinav	XII
S103	Abhishar	XII

Teacher

T_ID	T_Name	Desig.
T104	Ramesh	PGT
T105	Dinesh	TGT
T106	Suresh	TGT

What will be the output of the following statement?
a) SELECT * FROM Student, Teacher;
b) Write a output for SQL Queries (i) to (iv), which are based on the table: Student given below:

Student

R_No.	Name	Class	DOB	Gender	City	Marks
1	Nanda	X	06-06-1995	M	Agra	551
2	Saurabh	XII	07-05-1993	M	Delhi	462
3	Sanal	XI	06-05-1994	F	Mumbai	400
4	Trisla	XII	08-08-1995	F	Delhi	450
5	Stort	XI	12-12-1994	M	Agra	369

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';

iv.   Select * from student order by Name;

27   Write a function Displaywasa() in Python that counts the number of "was" and "a"   3
words present in a text file "STORY.TXT". If the "STORY.TXT" contents are as
follows:

One day came a long, serene rain,
Saplings, plants, farmers, reservoirs smiled again.
Others gave a frown of pain,
Due to foresight, there was no stink or overflowing drains.
Then arose the shining sun,
It was curtains up for a boon.
I looked up with elegant smile,
Sweet rainbow appeared within a mile.
I met the rainbow at the horizon,
It was a joyful, lovely reunion.
The displaylines() function should display the output as:
Total Was or a is:: 8

OR

Write a method displaylines() in Python to read lines from text file 'TEST.TXT' and
display the lines which are not starting with any vowel.
If the file content is as follows:
One day came a long, serene rain,
Saplings, plants, farmers, reservoirs smiled again.
Others gave a frown of pain,
Due to foresight, there was no stink or overflowing drains.
Then arose the shining sun,
It was curtains up for a boon.
I looked up with elegant smile,
Sweet rainbow appeared within a mile.
I met the rainbow at the horizon,
It was a joyful, lovely reunion.

The displaylines() function should display the output as:
Saplings, plants, farmers, reservoirs smiled again
Due to foresight, there was no stink or overflowing drains
Then arose the shining sun
Sweet rainbow appeared within a mile

28   A) Write SQL queries for (i) to (iv) and find outputs for SQL queries (v) to (viii), which   3
are based on the tables TRANSPORT and TRIP

TABLE: TRANSPORT

TCODE	TTYPE	PERKM
103	ORDINARY BUS	90
105	SUV	40
104	CAR	20
103	ORDINARY BUS	90
101	VOLVO BUS	160
102	AC DELUXE BUS	140

TABLE: TRIP

NO	NAME	TDATE	KM	TCODE	NOP
11	DANISH KHAN	2015-12-13	200	101	22
13	DANISH SAHAI	2016-06-21	100	103	45
15	RAM KUMAR	2016-02-23	350	102	42
12	FAN 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

7 rows in set (0.00 sec)

i.   To display NO, NAME, TDATE from the table TRIP in descending order of NO.
ii.   To display the NAME of the drivers from the table TRIP who are traveling by
transport vehicle with code 101 or 103.
iii. To display the NO and NAME of those drivers from the table TRIP who travelled
between '2015-02-10' and '2015-04-01'.
iv.   To display all the details from table TRIP in which the distance travelled is more
than 100 KM in ascending order of NOP

29 Alam has a list containing 10 integers. You need to help him create a program with separate user defined functions to perform the following operations based on this list.   3
   ● Traverse the content of the list and push the even numbers into a stack.
   ● Pop and display the content of the stack.
   For Example: If the sample Content of the list is as follows:
      N=[12, 13, 34, 56, 21, 79, 98, 22, 35, 38]
   Sample Output of the code should be:
      38 22 98 56 34 12

30 Write Addnew(Book) and Remove(Book) methods in python to add a new Book and Remove a Book from a List of Books, considering them to act as PUSH and POP operations of the data structure Stack.   3

OR

Write a function in Python, Push(Student_details) where , Student_details is a dictionary containing the details of Students Details– {Sname:Marks}. The function should push the names of those students in the stack who have Marks greater than 75. Also display the count of students pushed into the stack. For example: If the dictionary contains the following data:

Student_details={"Sonu":86,"Ramesh":69,"Suresh":85,"Sarita":35}
The stack should contain
Sonu,
Suresh

Section-D

31 Software Development Company has set up its new center at Jaipur for its office and web-based activities. It has 4 blocks of buildings named Blokc A, Block B, Block C and Block D.

Numbers of Computers

Block A	35
Block B	50
Block C	135
Block D	20

Distance between Blocks

Block A to Block B	60 M
Block B to Block C	40 M
Block C to Block A	30 M
Block D to Block C	50 M

   i. Suggest the most suitable place (i.e Block) to house the server of this company with a suitable reason.   1
   ii. Suggest the type of Network to connect all the blocks with suitable reason.   1
   iii. The company is planning to link all the blocks through a secure and high speed wired medium. Suggest a way to connect all the blocks.   1
   iv. Suggest the placement of the following devices with appropriate reasons: a. Switch / Hub   b. Repeater   1
   v. Suggest the most suitable wired medium for efficiently connecting each computer installed in every block out of the following network cables: 1
      a) Coaxial Cable   b) Ethernet Cable
      c) Single Pair Telephone Cable.

32 a) What possible output/outputs are expected to be displayed on screen at the time of   2+
        execution of the program from the following code? Also specify the minimum and   3
        maximum values that can be assigned to the variable End.

```
import random
colors=["Green","Red","Black","Blue","Orange","Cyan","Purple"]
End = random.randrange(2)+3
Begin = random.randrange(End)+1
for i in range(Begin,End):
    print(colors[i],end="$")
```

   i.   Red$Black$Blue$
   ii. GreenRedBlack$
   iii. Blue$Green$Yellow$
   iv. Blue$Orange$Cyan$

   b) Write a Python database connectivity script that deleted records from category table
      of database items that have name='stockable'
      Suppose user and password is 'root'.

OR

Find the output of the following code snippet:
```
def fun(s):
    k = len(s)
    m=" "
    for i in range(0,k):
        if(s[i].isupper()):
            m = m + s[i].lower()
        elif s[i].isalpha():
            m = m + s[i].upper()
        else:
            m = m + '@'
    print(m)
fun('jAWAHAR nAVODAYA sELECTION tEST-2023')
```

33 a) What is the difference between read() and readlines() function in python. Write a   5
        Program in Python that defines and calls the following user defined functions:
        (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 s_id,
              s_name and s_class to store Student id, Student name and Student Class
              respectively.
        (ii) C_Record() – To count the number of records present in the CSV file named
              'Student.csv'.

OR

   b) Define any two-file pointer location function in python (Binary File).
      Write a Program in Python that defines and calls the following user defined
      functions:
      (i)   add() – To accept and add data of a Computer store to a CSV file
            'Comp_store.csv'. Each record consists of a list with field elements as
            Part_ID, Part_Name and Part_Price to store Part id, Part name and Part
            price respectively.
      (ii) search()- To display the records of the furniture whose price is more than
            2000.

34	a)	What is the significance of Group By clause in SQL Query. Define with example.	1+
	b)	Define SQL functions with example.	1+
	c)	Write atleast one Difference and one Similarities between Primary Key and Unique Key Constraint.	2

OR (Option for part iii only)

c) Define Alter Command with its sub-Command with proper example.

35   Rohan is a Python programmer. He has written a code and created a binary file Student.dat to get data Roll_No, Name and Marks from user and write onto a binary file. The program should be able to get data from the user and write onto the file as long as the user wants. As a Python expert, help him to complete the following code based on the requirement given above:

```
import _____                              #  Statement 1
stu = { }
stufile = open("Student.dat", _____)      # Statement 2
ans = 'y'
while ans == 'y' or 'Y':
    Roll_No = int(input("Enter Roll No."))
    Name = input("Enter the Name of Student")
    Marks= float(input("Enter the marks of Student"))
    stu['Roll No']=Roll_No
    stu['Student Name']=Name
    stu['Marks Obt']=Marks
    pickle._____              # Statement 3
    ans=input("Want to Enter more records ?(y/n)….")
stufile.close()
```

(i)	Which module should be imported in the program? (Statement 1)	1
(ii)	Write the correct statement required to open a temporary file named temp.dat. (Statement 2)	1
(iii)	(iii) Which statement should Aman fill in Statement 3 to store the data in the binary file. (Statement 3)	2

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