

ANNUAL EXAMINATION [2019-20']

CLASS : XI

SUB: COMPUTER SCIENCE

TIME : 3Hrs

MM : 70

**General Instructions: -**

1. Please check that this question paper contains 5 printed pages and 7 questions.
2. Please write down the serial number of the question before attempting it.
3. All questions are compulsory.
4. Section A consists of 48 marks and Section B consists of 22 marks.
5. Programming language: Python.

**SECTION -A (48 marks)**

- Q-1 (a) What are the basic units of a Computer System? (1)
- (b) Give three examples of system software. (1)
- (c) 1. Convert  $(161)_{10}$  into its binary equivalent number. (2)
2. Convert the binary number 11011100 into its equivalent decimal number.
- (d) Differentiate between the working principle of Compiler vs Interpreter. (1)
- (e) What is the difference between interactive mode and script mode in Python? (1)
- (f) **What is following code doing? What would it print for input as 3?** (1)
- ```
n= int(input( "Enter an integer:"))
if n<1:
    print("invalid value")
else:
    for i in range(1, n+1):
        print( i*i )
```
- Q-2 (a) **Give the elements of the following list which are present at the given index numbers:** (4)
- languages=['Hindi', 'English', 'Bengali', 'Oriya', 'Telugu', 'Marathi', 'Malayalam']**
- a) languages [2]
  - b) languages [-3]
  - c) languages [2:5]
  - d) languages [2:5:2]
  - e) languages [:5]
  - f) languages [::-2]
  - g) languages [-5:-2]
  - h) languages [5:2:-1]
- (b) **Rewrite the following program using for( ) loop:** (2)
- ```
sum =0;
```

```

i=1;
while(i<=10):
    sum =sum +I;
    i+=1;
print ("sum=",sum)

```

(c) **Identify valid and invalid variable names from the following:-** (2)

- (i) 12class
- (ii) final-exam
- (iii) Class
- (iv) For
- (v) subjects
- (vi) percentage%

(d) **Give the data type of the following variables:** (3)

- a) x= 'Raghav'
- b) y= 100.56
- c) z=10
- d) t=15 +6j
- e) var1=[120, 130, 140, 'Ajit']
- f) var2=('May', 'June', 5, 6)
- g) num=true

(e) **Identify which of the following expressions are correct:** (2)

- a) x,y,z=12.5, 170, 'Samarth'
- b) x,y,z=12.5, 170, 'Samarth', k
- c) x=y=z=100
- d) x,y = 10,10, z = 10
- e) x,y = 10

(f) **Consider the following list:** (2)

```

monuments=[ 'Kutub Minar', 10, 'Taj Mahal', 20, 'India Gate', 30, 'Char Minar', 40]
states=['Delhi', 'Kerala', 'Tamil Nadu', 'Bihar']

```

(g) **Following code is trying to create a tuple with a single item. But when we try to obtain the length of the tuple, Python gives error. Why ? What is the solution?** (2)

```

>>> t=(6)
>>> len(t)
Traceback : most recent call last
File "<python shell #8>", line 1 in module
len(t)
Type error : object of type int has no len()

```

Q-3 (a) **How list is different from tuple? What do you mean by packing and unpacking of tuples?** (2)

(b) **A year is a leap year if it is divisible by 4, except that years divisible by 100 are not leap years unless they are also divisible by 400. Write a program that asks the user to input a year and prints out whether it is a leap year or not.** (3)

(c) **Consider the lists languages and states and give the output of the following Python statements:** (3)

```
languages=['Hindi', 'English', 'Bengali', 'Oriya', 'Telugu', 'Marathi', 'Malayalam']
```

```
states=['Delhi', 'Kerala', 'Tamil Nadu', 'Bihar', 'Delhi']
```

a) languages=languages + "Tamil"

b) states=states\*2

c) len(languages)

d) max(languages)

e) min(languages)

f) count('Delhi')

- (d) **Write a program to accept an integer and print the multiplication table of that number till 10 in the following format. Eg: if number is 5** (3)

```
5 x 1 = 5
```

```
5 x 2 = 10
```

```
5 x 3 = 15
```

- Q-4 (a) **Predict the output of the following Python code:** (3)

```
M=['p', 'r', 'o', 'b', 'l', 'e', 'm']
```

```
M[2:3]=[ ]
```

```
print(M)
```

```
M[2:5]= [ ]
```

```
print(M)
```

- (b) **Write the most appropriate List methods to perform the following tasks:** (2)

(i) To remove elements in list slice.

(ii) To add an item at the end of the list.

(iii) To add multiple elements to a list.

(iv) To remove the first occurrence of an element from the list.

- (c) **Write a program to accept the number of lines and print the following pattern. Eg: If the number of lines is 4, then the pattern should be as follows.** (3)

```
A
```

```
A B
```

```
A B C
```

```
A B C D
```

- (d) **Predict the output of the following code:** (3)

```
for i in range(4):
```

```
    for j in range(5):
```

```
        if i+1==j or j+1==4 :
```

```
            print('+', end=' ')
```

```
        else:
```

```
            print('o', end=' ')
```

```
print()
```

- (e) **Write a program to input n and print first 'n' odd numbers in descending order. Eg: if number is 10, then the output is 9 7 5 3 1** (2)

**SECTION 'B' (22 marks)**

- Q-5 (a) **Give duals for the following Boolean expression.** (2)
- (i)  $X+X'Y$
  - (ii)  $XY+XY'+X'Y$
  - (iii)  $(A+0).(A.1.A')$
  - (iv)  $AB+A'B$

- (b) **Name the Boolean law shown below and verify it using a truth table:** (2)

$$A+BC=(A+B).(A+C)$$

- (c) What do you understand by *Tautology* and *Fallacy*? (1)

- Q-6 (a) What are various precautions to be taken care of while browsing safely on web? (2)

- (b) **Define the following terms:** (2)

(i) Digital footprint

(ii) Eavesdropping

- (c) Differentiate between spyware and malware. (2)

- Q-7 (a) **What are database constraints? Explain the process of setting and checking the following database constraints.** (2)

(i) NOT NULL

(ii) CHECK

- (b) What do you understand by Degree and Cardinality of a table? What is the degree and cardinality of the table 'Employee' in Q-7(c)? (1)

- (c) **Consider the table "Employee" given below. Write SQL commands for (i) to (vi).** (3)

Eid	EName	ESal	EDept	DOJ	EDesgn
1	Anil	15600	Sales	23-NOV-1997	Manager
2	Aman	17400	Marketing	13-APR-1996	Manager
3	Nayak	9500	Accounts	12-DEC-1997	Clerk
4	Sameer	21000	Planning	01-JAN-1998	Leader
5	Babita	24500	Sales	12-JUN-1999	Leader
6	Kishan	13900	Accounts	13-DEC-1997	Organiser

(i) To display the list of employees who works in Accounts Department.

(ii) To display the EName, ESal of those employees whose salary is between 8000 and 15000(both values included).

(iii) To display the details of those employees who DOJ is in the month of Dec 1997.

- (iv) Increase ESAL of the employee to Rs 500 who are working in Sales Department.
- (v) Display Ename, Esal and DOJ in descending order of Ename
- (vi) To display the names of those employees whose EName starts with 'A'.

(d) Give the output of the following SQL queries (i) to (vi) based on the given table 'ITEM'. (3)

I_CODE	I_NAME	MANUFACTURER	QTY	DISCOUNT	AMOUNT
101	Pen	ABC	50	10	1000
102	Notebook	ABC	250	10	2050
103	Books	XYZ	150	8	8500
104	Bag	ABC	10	5	5400
105	Table	XYZ	15	8	27000
106	Scale	ABC	26	5	1500

- (i) SELECT I\_NAME,MANUFACTURER FROM ITEM WHERE I\_CODE=104;
- (ii) SELECT I\_NAME,QTY,AMOUNT FROM ITEM WHERE DISCOUNT<8;
- (iii) SELECT DISTINCT(MANUFACTURER) FROM ITEM;
- (iv) SELECT MANUFACTURER FROM ITEM WHERE AMOUNT BETWEEN 2500 AND 10000;
- (v) SELECT I\_CODE , I\_NAME , QTY FROM ITEM WHERE MANUFACTURER NOT IN ('XYZ');
- (vi) SELECT \* FROM ITEM WHERE I\_NAME IS NULL;

(e) What is SQL? What are three different form of languages supported in SQL? (2)