

HS/XI/A.Sc.Com./CS/20

2020

COMPUTER SCIENCE

(Theory)

Full Marks : 70

Time : 3 hours

*The figures in the margin indicate full marks for the questions**General Instructions :*

(i) Write all the answers in the Answer Script.

(ii) Attempt all the questions.

1. Choose the correct answer from the following $1 \times 6 = 6$

(i) Which of the following is not mutable types?

(a) List

(b) Tulpe

(c) Dictionary

(d) Sets.

(ii) What will be the output of the following expression?

 $a = 10$ $b = 4$ $c = a \% b$

(a) 2.5

(b) 2.0

(c) 2

(d) 3.0

(iii) Write the **for** statement to generate the following series.**2 4 6 8 10**

(a) for i in range (2 to 10, 2):

(b) for i in range (2 to 11, 2):

(c) for i in range (2, 10, 2):

(d) for i in range (2, 11, 2):

(iv) _____ are small data holding areas within CPU that hold data, instructions and memory address during Processing.

(a) RAM chips

(b) CD-ROMs

(c) SoC chips

(d) Registers.

(3)

(v) Which of the following key is used to represent the relationship between two tables?

- (a) Primary Key
- (b) Foreign Key
- (c) Alternate Key
- (d) Candidate Key

(vi) _____ is a small piece of data sent from a website and stored in a user's web browser while a user is browsing a Website.

- (a) spam
- (b) viruses
- (c) cookies
- (d) Digital Footprint

2. Answer the following questions in not more than two sentences: $1 \times 6 = 6$

- (i) What are literals in Python?
- (ii) What is the significance of **pass** statement in Python?
- (iii) What are Python Lists?
- (iv) What is Unicode?

(4)

(v) What is a database system?

(vi) What is Cyber Safety?

3. Answer the following questions in brief: $2 \times 6 = 12$

- (i) What are operators? What are their functions?
- (ii) What are floating numbers? When are they preferred over integers?
- (iii) What is entry-controlled loop? Give one example.
- (iv) Differentiate between a syntax error and logical error in a program.
- (v) What will be the output of the following expression?
 - (a) 'MYSTRY" [:4]
 - (b) "pine" in "Pineapple"
- (vi) How are individual elements of Dictionaries accessed?

4. Answer the following: $3 \times 3 = 9$

- (i) What are the built-in core data types of Python? What are Numeric types? How many numeric data types does Python provide?

3

(5)

(ii) Write the output of the following code fragments: 3

```
x = 15
y = 5
while x>y :
    print (x, y)
    x = x - 2
    y = y + 2
```

Or

Explain the **if-else** statement with example 3

(iii) Write a program that asks the user to input a year and to find out whether it is a leap year or not. 3

Or

What will be the output of the following code fragment 3

```
t1 = (4, 5, 6)
t2 = (6, 7)
t3 = t1 + t2
t4 = t2 + t3
Print (t3)
Print (t4)
```

5. Answer the following: $4 \times 2 = 8$

(i) What is the difference between **append** () and **insert** () methods of list. Explain with examples. 4

(6)

Or

Write a Python program to input three integers and find out the largest integer. 4

(ii) Write a Python program to sort a list of integers using Bubble sort. 4

Or

Explain **get** () and **update** () methods of Dictionary with examples. 4

6. Answer the following questions : $2 \times 2 = 4$

(i) What is the function of main memory? What are the measuring units of memory? 2

(ii) What are De Morgan's theorems? 2

Or

Prove the following Boolean expression: 2
 $A(B + B'C + B'C') = A$

7. Draw a block diagram depicting organization of a mobile system. 4

Or

Convert the following: $2 + 2 = 4$

(a) $(1876.B4)_{16}$ to Binary

(b) $(110010.101)_2$ to Decimal.

(7)

8. Answer the following : $2 \times 3 = 6$

- (i) Write two advantages of using database. 2
- (ii) Differentiate between Char and Varchar Datatypes. 2
- (iii) What is Primary Key? What is Primary Key constraint? 2

9. Write the purpose and example of each MYSQL function. $3 \times 1 = 3$

- (a) Upper ()
- (b) NOW ()
- (c) LTRIM ()

Or

What are table constraints? What are column constraints? How does these two differ? $1 + 1 + 1 = 3$

10. What is NOSQL database? What are its main features? List name of four types of NOSQL Databases. $1 + 2 + 1 = 4$

(8)

Or

Consider the following TEACHER table and write SQL commands for the following queries. 4

TNO	TNAME	SALARY	DEPT	DOJ
T01	VARUN SHARMA	25000	PHYSICS	2000/01/01
TO2	RUPAK DAS	25700	COMPUTER SCIENCE	1999/01/05
T03	MITALE BARUA	30000	COMPUTER SCIENCE	2001/10/01
T04	SHYAMA DUTTA	24000	CHEMISTRY	2000/02/07

- (a) Display all records from the table TEACHER.
- (b) Display all records whose SALARY is more than 25000.
- (c) Display the NAME and SALARY of the teachers whose DEPT is COMPUTER SCIENCE.
- (d) Insert a new row in the TEACHER table with following data:

T05, SUMAN SINHA, 25200,
CHEMISTRY, 2001/04/01.

11. Answer the following questions:

(i) What is Cyber bullying and Cyber stalking? 2

(ii) What are different types of threats to computer security? Explain any one of them. 1 + 2 = 3

(iii) What is phishing? How is pharming similar to and different from phishing? 1 + 1 + 1 = 3

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