

HS/XI/A.Sc.Com./IP/22**2022****INFORMATICS PRACTICES****(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 × 6 = 6

- (i) NumPy Arrays come in _____ forms
 - (a) One
 - (b) Two
 - (c) Three
 - (d) Four

- (ii) _____ is a new universal coding standard developed by the Unicode Consortium
 - (a) ASCII
 - (b) ISCII
 - (c) UNICODE
 - (d) None of the above.

- (iii) What will be the output of the following :

a = 2

a, b = a + 2, a + 4

Print (a)

Print (b)

- (a) 4, 6
- (b) 0, 8
- (c) 2, 4
- (d) 4, 3

- (iv) What will be the output for the following code
 S=pd.Series ['Jan', 'Feb', 'March', 'April', 'May', 'June'] print S[1:3]
 - (a) Jan
Feb
 - (b) Feb
March

(3)

- (c) March
April
- (d) Jan
March
- (v) Which of the following is not a cybercrime
 - (a) Cyber trolls
 - (b) Phishing
 - (c) Cyber stalking
 - (d) Social Networking
- (vi) Which of the following is false for SQL statements/commands.
 - (a) SQL statements are case sensitive
 - (b) Keywords cannot be abbreviated or split across lines
 - (c) SQL statements can be on one or more lines
 - (d) A command can be written in full or only first four characters.

2. Answer the following

1 × 6 = 6

- (i) What is CDMA?
- (ii) Name the string types supported by Python.

(4)

- (iii) Define a Tupule?
- (iv) Create a series 'A', having values
[42, 46, 7.2, A]
- (v) How can you detect missing values in a Dataframe?
- (vi) What is the purpose of the Unique Key Constraint?

3. Answer the following

2 × 4 = 8

- (i) What are Software Libraries? Name the libraries that is supported by Python.
- (ii) Differentiate between Mutable and Immutable types in Python.
- (iii) Give the output for the following code
 - $a, b, c = 4, 2, 6$
 - $d = a+b*c/b$
 - Print (d)
- (iv) $N = \text{int}(\text{input}(\text{'Enter number'}))$.

```
Sum = 0
i = 1
While i <= N:
    Sum = Sum + i
    i = i + 2
Print (sum)
```

What will be the output if the input value is 5?

(5)

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

- (i) Differentiate between a calculator and a computer.
- (ii) Write a Python Program to reverse the objects of a List [3, 4, 7, - 6, 4, 3.2] and find their sum.
- (iii) Draw a flowchart to check if a given number is zero, positive or negative.

5. Answer the following:

- (i) What are tokens? Explain with examples the different types of tokens in Python. 4
- (ii) Write Python code to generate Fibonacci Series till 10. 4

Or

Write down True or False for the following statements.

- (a) Cache memory is faster than main memory. 1
- (b) The memory unit that communicates directly with the CPU is called Auxillary Memory. 1
- (c) BIOS is responsible for low level system task when the computer boots up. 1
- (d) Mobile Operating System uses voice User Interface. 1

(6)

6. Answer the following questions with (10-15) words: $2 \times 3 = 6$

- (i) Briefly explain the different data structures in Pandas.
- (ii) How do you create a series from a dictionary.
- (iii) Considering the series

`>>> S =pd. Series ([2, 4, 6, 8, 10])`

Find the output of the statements:

(i) `>>> S [1 : 3]`, (ii) `>>> S.head (2)`

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

- (i) What is a CVS File? How can we read a CVS file with specific columns. Give examples.
- (ii) Considering the following dataframes. Explain add (), sub () and rsub () function.

dfB1

	First	Second	Third
0	10	4	40
1	20	5	70
2	30	6	80
3	40	7	65

dfB2

	First	Second	Third
0	12	14	20
1	14	15	35
2	20	17	40
3	17	19	45

(7)

8. Answer the following : $1 \times 4 = 4$

A dictionary 'Section' contains the following data

Section = {'Name' : ['Amanda', 'Grace', 'Amy',
'Jyoti', 'Healther'],
'Class': ['6A', '6B', '6C', '6D', '6E']}

Write down the statements for the following

- Create a Dataframe called Sec.
- Find the output of Sec. `iloc [0:3]`
- Add a column called 'Address' with the values ['Malki', 'Laban', 'Donbosco', 'Nongrim', 'None']
- Delete the 2nd and 4th rows.

9. Considering the given relations, answer the following: $2 \times 2 = 4$

R. No.	Name	Section	Marks
100	Annie	A	70
101	Sophia	B	65
102	Clarín	C	40
103	Manisha	D	80
104	Andrea	A	95
105	Sania	B	85

- Write SQL Commands to list student details belonging to section A.
- Which column should be considered most appropriate as Primary key.

(8)

10. Create the following tables: 4

Cust_No.	Cust_Name	Address	
Order_No.	Cust_No.	Order_item	Order_date

With constraints specified below:

- Primary keys : Order_No., Cust_No.
Foreign key : Cust_No.
 - Insert at least two records in each table
11. Answer the following:
- What is a Firewall? 2
 - What are the damages caused by Adware? 2
 - What is Digital Footprint? 2
 - What is Private Browsing? What are the different ways in which you can use the internet without revealing your search history and data. $1 + 2 = 3$

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