

2019

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) Answer each Unit questions together at one place.

UNIT-I

(Marks : 30)

(Programming and Computational Thinking-PCT-1)

1. Answer the following questions:

- (a) Define Hardware. 1
- (b) What are the two categories of system software? 1
- (c) What is a variable? 1
- (d) What is a Character set? 1

(2)

- (e) What are the functional components of a digital computer? 2

Or

- What is the purpose of main memory in a computer? 2
- (f) Differentiate between a compiler and interpreter. 2
- (g) What is an identifier? What are the identifier forming rules of Python? 2

Or

- What are literals? How many types of literals are available in Python? 2
- (h) How is a mutable object different from an immutable object? Give one example of each type. 2
- (i) What will be the output of the following code fragment: 2

```
a = 5
while a<8:
    Print(a*2)
    a = a + 1
else: print (a - 2)
```

(3)

Or

What will be the output of the following code fragment:

2

```
a, b, c = [1, 2, 3], [1, 2, 3], [6, 2, 3]
```

```
x = [a, b, c]
```

```
print (a + x)
```

(j) What is meant by traversing a string?

2

(k) What is meant by a data type? What are the built-in core data types of Python? How many numeric data types does Python provide?

3

Or

Write a Python program to swap the contents of two variables A and B.

3

(l) Explain the if-else statement with example.

3

(m) What are operators? How many types of operators are available in Python? Explain arithmetic operators with examples.

4

Or

Write a Python program to calculate and print the roots of a quadratic equation.

4

(4)

(n) Write a Python program to input 'n' numbers of elements and store them in a tuple.

4

Or

What are the differences between **'for loop'** and **'while loop'**? Explain with examples.

4

UNIT – II

(Marks : 20)

(Data Handling - DH1)

2. Answer the following questions:

(a) What is Pandas?

1

(b) What is a Pandas Series?

1

Or

What is pandas DataFrame?

1

(c) What are the key features of pandas?

2

(d) How can you create a pandas series using a list?

2

(e) Explain head() and tail() function in connection with pandas series.

2

(5)

- (f) In pandas 'S' is a series with following result: 2
S=pd.Series ([10, 20, 30, 40])
Write a statement to assign the series index as a, b, c, d explicitly.

Or

How can you create a pandas DataFrame? 2

- (g) Explain the functions sum(), mean(), and count() 3
in connection with DataFrame.
- (h) How can you add columns into an existing 3
DataFrame 'df'. Explain with an example.

Or

How can you add rows into an existing DataFrame 3
'df'. Explain with an example.

- (i) Explain sorting operation in a DataFrame using 4
example.

Or

How can you create a CSV(Comma Separated 4
value) file and read it in a DataFrame.

UNIT – III

(Marks : 10)

(Data Management-1)

3. Answer the following questions:

- (a) What is a database? 1

(6)

- (b) List two advantages and disadvantages of using 2
database system.
- (c) Differentiate between CHAR and VARCHAR data 2
types.

Or

Explain ALTER TABLE command. 2

- (d) How is FOREIGN KEY different from PRIMARY KEY? 2
- (e) Consider the following EMPLOYEE table and Write 3
SQL commands for the given questions.

Emp_No	Emp_Name	Designation	Date of joining	Salary
8000	Sharmistha	Manager	1990-12-18	45000.00
8010	Ajay	Clerk	2004-10-05	15000.00
8025	Bina	Analyst	1988-01-25	50000.00
8030	Rizwan	Salesman	1998-05-15	18000.00
8040	Dinesh	President	1980-03-02	60000.00
8045	Pankaj	Vice President	1985-04-28	55000.00
8050	Kuldeep	Clerk	2006-09-17	14000.00

- i. Display all the records from the table EMPLOYEE?
- ii. Display all the records whose Designation is 'Clerk'?
- iii. Display all the records where the salary is between 40000 and 55000,

(7)

UNIT – IV

(Marks : 10)

(Society, Law and Ethics-1)

4. Answer the following questions:

(a) What is meant by Cyber safety? 1

Or

What is a Cybercrime? 1

(b) Explain briefly at least two Social Networking sites. 2

(c) What do you understand by identity theft? 2

Or

What measures should one take to avoid and maintain confidentiality of personal information? 2

(d) What is a computer virus? How it can affect your computer? 2

(e) Explain three methods to protect your network from virus. 3

Or

Explain the terms Spyware, Phishing and Spam. 3

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