

2019

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) Answer each Unit questions together at one place.

Unit-I

(Marks : 35)

(Programming and Computational Thinking-PCT-1)

1. Answer the following questions:

- (a) What is Python’s standard library? 1
- (b) What is a Character set? 1

- (c) Write real constants 21.235 and 0.00052 in exponential form. 1
- (d) How are comments written in Python? 1
- (e) What is an identifier? What are the identifier forming rules in Python? 2
- (f) What are literals? How many types of literals are available in Python? 2
- (g) How is a mutable object different from an immutable object? Give one example of each type. 2
- (h) What is meant by traversing a string? 2

Or

What is the difference between pop() and remove () methods of list? 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) How can you create a tuple by reading elements through keyboard input?

2

Or

What are the characteristic of Python dictionaries?

2

(k) What are logical errors?

2

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

3

Or

What is operator precedence and associativity?
What is the associativity of the exponent operator?

3

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

3

(n) 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

(4)

(o) 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

(p) 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 : 10)

(Computer Systems and Organisation)

2. Answer the following questions:

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

2

(b) What is the purpose of main memory of a computer?

2

(5)

Or

What is the role of communication processor of a mobile system? 2

(c) What is an operating system? 1

(d) Convert any one of the following: 2

(i) $(D6C1)_{16} = (?)_{10}$

(ii) $(110110.111)_2 = (?)_{10}$

(iii) $(0.5625)_{10} = (?)_2$

(e) Draw a logic circuit diagram using NAND or NOR only to implement the Boolean function.
 $F(A,B) = A'B' + AB$ 3

Or

State DeMorgan's Theorems and prove them using truth table. 3

UNIT – III

(Marks : 15)

(Data Management-1)

3. Answer the following questions:

(a) What is a database? 1

(b) What is meant by Primary key? 1

(6)

(c) Define tuples and attributes. 2

(d) List two advantages and disadvantages of using database system. 2

(e) Differentiate between CHAR and VARCHAR data types. 2

Or

Explain the functions LTRIM(), and SQRT () 2

(f) Explain UPDATE command. 2

(g) What is a join? How is Natural join different from an Equi-join? 2

Or

What are the advantages of indexes? 2

(h) Consider the following EMPLOYEE table and Write SQL commands for questions that follow . 3

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

(7)

- 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.

Or

What do you understand by NoSQL databases?
How are these different from relational databases?
What are the different types of NoSQL databases? 3

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

(8)

Or

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

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

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

Or

Explain the terms Spyware, phishing and Spam. 3

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