

Exam. Code : 107203

Subject Code : 2092

BCA 3rd Semester

COMPUTER ARCHITECTURE

Paper-I

Time Allowed—3 Hours]

[Maximum Marks—75

- Note :-** (1) The candidates are required to attempt **five** questions. All questions carry **15** marks each.
(2) The students can use only non-programmable non-storage type calculator.

1. What is Register Transfer ? Explain various registers.
2. What are Computer Instructions ? Explain design of a basic computer.
3. Explain Wilhe's Design of Hardwired and Microprogrammed Control Unit.
4. What is Memory Hierarchy ? Explain Cache and Virtual Memory and also write difference between Cache and Virtual Memory.
5. Explain I/O Interface. What are DMA and I/O processor ? Explain.
6. Explain Parallel Processing Pipelining.
7. What are Parallel and Distributed computers ? Explain.
8. What is Vector Processing ? Explain with an example.

Exam. Code : 107203

Subject Code : 2093

BCA 3rd Semester

DATABASE MANAGEMENT SYSTEM

Paper—II

Time Allowed—3 Hours]

[Maximum Marks—75

Note :— Attempt any **FIVE** questions. All questions carry equal marks.

1. (a) Compare the features of Network, Hierarchical and Relational model.
(b) What do you mean by recovery of database ? Discuss the various mechanisms used for recovery of database.
8,7
2. (a) What are triggers ? Also explain the use of triggers in database.
(b) Discuss the anomalies of un-normalized database.
8,7
3. (a) Discuss the three level architecture of Database Management System.
(b) What are the various methods of concurrency control ? Explain in detail the two-phase locking protocol.
8,7
4. (a) What is Normalization ? Explain the various types of normal forms with example.
(b) What are the different threats to data security ? Explain.
8,7

5. (a) Discuss the concept of entity relationship model.
How it helps in designing relational databases ?
(b) Differentiate between functions and procedures in PL/SQL. 8,7
6. (a) Explain the role of keys in relational database.
Elaborate the various types of keys.
(b) Discuss the use of selection and join operators on SQL based queries. 8,7
7. (a) What is meant by physical and logical data independence ? How are they implemented ? Explain.
(b) Differentiate between transitive dependency and multivalued dependency. 8,7
8. Write short notes on :
(a) Big Data
(b) NoSQL
(c) Cursors. 5,5,5

Exam. Code : 107203

Subject Code : 2094

BCA 3rd Semester

**COMPUTATIONAL PROBLEM SOLVING USING
PYTHON**

Paper—III

Time Allowed—3 Hours]

[Maximum Marks—75

Note :- (1) Attempt any **five** questions.

(2) Use of Non-Programmable, Non-Storage
Calculator is permitted.

1. (a) Name Python Data Types. 5

(b) Write the output for the following code :

```
x = 10
```

```
y = 20
```

```
if (x > y):
```

```
    print x + y
```

```
else :
```

```
    print x - y 5
```

(c) Rectify the error (if any) in the given statements.

```
>> str = "Hello Python"
```

```
>> str[6] = 'S' 5
```

2. (a) What are the advantages of the Python dictionary
type ? 5

- (b) Write a program in input any number and print all factors of that number. 5

- (c) What all can be possible output of the following code ?

```
def myfunc (x=None) :
    result = " "
    if x is None :
        result = "No argument given"
    elif x == 0:
        result = "Zero"
    elif 0 < x <= 3:
        result = "x is between 0 and 3"
    else:
        result = "x is more than 3"
    return result
```

5

3. (a) Predict the output of the following program. Also state which concept of OOP is being implemented?

```
def sum(x, y, z) :
    print "sum = ", x + y + z
def sum(a, b) :
    print "sum =", a+b
sum(10, 20)
sum(10, 20, 30)
```

5

- (b) Define a class TravelPlan in Python with the following descriptions :

Private Members :

Plan Code of type long

Place of type character array (string)

Number_of_travellers of type integer

Number_ofbuses of type integer 10

4. (a) Write a Python program that accepts a word from the user and reverse it. 7

- (b) Write a Python program to convert month name to a number of days.

Expected Output :

List of months : January, February, March, April, May, June, July, August, September, October, November, December.

Input the name of Month : March

No. of days : 31 days 8

5. (a) Write a Python program to get the largest number from a list. 7

- (b) Write a Python program to print a specified list after removing the 0th, 4th and 5th elements.

Sample List : ['Red', 'Green', 'White', 'Black', 'Pink', 'Yellow']

Expected Output : ['Green', 'White', 'Black'] 8

6. (a) Write a note on using Files in Python. 5
(b) Write a Python program to count the frequency of words in a file. 10
7. Using Python code highlight use Python Modules and Top Down Design. 15
8. Using Python code highlight use Python API for querying DataBase Tables. 15

Exam. Code : 107203

Subject Code : 2095

BCA 3rd Semester

ENVIRONMENTAL STUDIES—I

Paper—IV

Time Allowed—3 Hours]

[Maximum Marks—50

Note :—Section-A (15 marks) : Attempt any **THREE** questions. Answer to the questions should be restricted to **2** pages.

Section-B (20 marks) : Attempt any **TWO** questions restricting your answers to **4** pages.

Section-C (15 marks) : Attempt any **ONE** question restricting your answer to **5** pages.

SECTION—A

Short notes on any **THREE** of the following :

1. Multidisciplinary nature of environmental studies.
2. Environmental impacts of mining activities.
3. Desertification.
4. Ecological succession.
5. Environmental ethics.

3×5=15

SECTION—B

6. What is the role of environmental studies in combating environmental degradation ?

7. Write a detailed note on how modern agriculture is responsible for environmental degradation.
8. Describe the structure and function of a forest ecosystem.
9. List various types of wastelands. Discuss how they can be reclaimed. $2 \times 10 = 20$

SECTION—C

10. Discuss with the help of case studies the problems related to resettlement and rehabilitation of people with respect to various development projects.
11. Discuss the various causes and impacts of overexploitation of water resources. Suggest some measures for water conservation. $1 \times 15 = 15$

Exam. Code : 107203

Subject Code : 9063

BCA 3rd Semester (Old Sylb.—2016)

C++ (OOP LANGUAGE)

Paper—III

Time Allowed—3 Hours]

[Maximum Marks—75

Note :— Attempt any **five** questions. All questions carry equal marks.

1. Discuss the following :

(a) Different types of Operators in C++. 7½

(b) Preprocessor Directives. 7½

2. (a) What are the features of IDE ? Explain them. 7½

(b) How strings can be initialized using looping statements ? Explain by taking suitable example.

7½

3. (a) Write a program in C++ demonstrating the use of if-else ladder statement. 7½

(b) Write a program to find average of first 20 numbers using while loop statement. 7½

4. (a) What are functions ? Write a program to overload base class function in multi-level inheritance. 7½

(b) Write a program using functions to compare two strings. 7½

5. (a) What are pitfalls in operator overloading ? Explain. 7½
- (b) Overload unary++ operator to add two dates. 7½
6. Discuss the significance of public Inheritance in OOP Language. How single inheritance differs from hierarchical Inheritance ? Explain. 15
7. (a) Demonstrate runtime polymorphism by taking an example. 5
- (b) Discuss the following :
- (i) Accessing structure members 5
- (ii) Overriding member functions. 5
8. Write short notes on the following :
- (a) Default Constructors. 7½
- (b) Local and Global variables. 7½