

MODEL PAPER – 1
Bachelor of Computer Application (BCA)– Semester 5
Paper: Cryptography & Network Security
Time: 3 Hours | Max Marks: 70

♦ SECTION – A

Answer any SIX questions ($6 \times 5 = 30$ Marks)

1.
 - a) Define encryption and decryption.
 - b) Explain substitution cipher.
 - c) Define transposition cipher.
 - d) Explain DES structure.
 - e) Define AES.
 - f) Explain RSA algorithm.
 - g) Define hash function.
 - h) Explain digital signature.
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♦ SECTION – B

Answer ALL questions ($4 \times 10 = 40$ Marks)

2.(a) Explain network security model and services.

OR

(b) Explain classical encryption techniques.

3.(a) Explain DES algorithm and its strength.

OR

(b) Explain AES algorithm.

4.(a) Explain public-key cryptography and RSA.

OR

(b) Explain Diffie-Hellman and ECC.

5.(a) Explain message authentication and MAC.

OR

(b) Explain digital signatures and authentication protocols.

MODEL PAPER – 2
Bachelor of Computer Application (BCA)– Semester 5
Paper: Cryptography & Network Security
Time: 3 Hours | Max Marks: 70

♦ SECTION – A

Answer any SIX questions ($6 \times 5 = 30$ Marks)

1.
 - a) Explain types of security attacks with examples.
 - b) Discuss security services and mechanisms.
 - c) Explain substitution and transposition techniques.
 - d) Define block cipher and Feistel structure.
 - e) Explain Data Encryption Standard (DES).
 - f) Describe AES and its advantages.
 - g) Explain RSA algorithm.
 - h) Discuss hash functions and message authentication.
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♦ SECTION – B

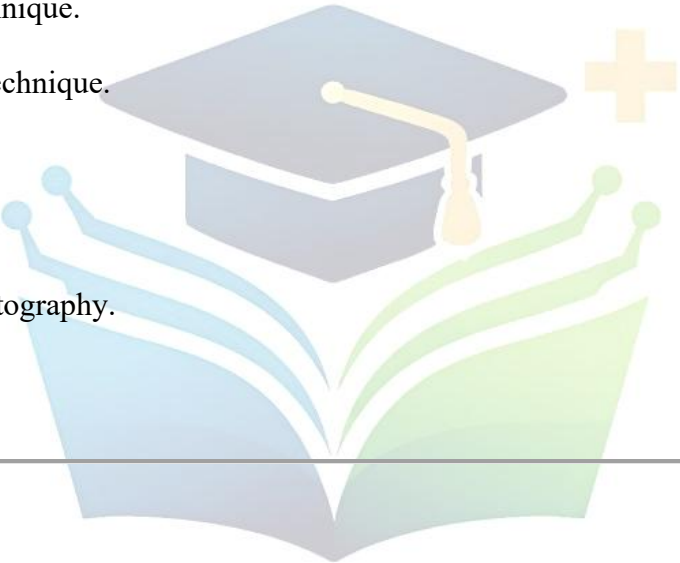
Answer ALL questions ($4 \times 10 = 40$ Marks)

- 2.(a) Explain network security model and types of attacks in detail.
OR
(b) Explain classical encryption techniques with suitable examples.
- 3.(a) Explain DES algorithm with diagram and working.
OR
(b) Explain AES encryption process and key expansion.
- 4.(a) Explain RSA algorithm with key generation, encryption, and decryption.
OR
(b) Explain Diffie-Hellman key exchange and elliptic curve cryptography.
- 5.(a) Explain message authentication codes and hash functions with properties.
OR
(b) Explain digital signatures, Kerberos, and X.509 authentication service.

MODEL PAPER – 3
Bachelor of Computer Application (BCA)– Semester 5
Paper: Cryptography & Network Security
Time: 3 Hours | Max Marks: 70

♦ SECTION – A

Answer any SIX questions ($6 \times 5 = 30$ Marks)

1.
 - a) Define security attacks with examples.
 - b) Explain security services.
 - c) Define substitution technique.
 - d) Explain transposition technique.
 - e) Define block cipher.
 - f) Explain DES.
 - g) Define public-key cryptography.
 - h) Explain hash functions.
- 

♦ SECTION – B

Answer ALL questions ($4 \times 10 = 40$ Marks)

- 2.(a) Explain security mechanisms and model for network security.

OR

- (b) Explain classical encryption techniques with examples.

- 3.(a) Explain Data Encryption Standard (DES) with structure.

OR

- (b) Explain AES algorithm and its design principles.

- 4.(a) Explain RSA algorithm with suitable example.

OR

- (b) Explain Diffie-Hellman key exchange.

- 5.(a) Explain message authentication and MAC.

OR

- (b) Explain digital signatures and authentication protocols.

MODEL PAPER – 4
Bachelor of Computer Application (BCA)– Semester 5
Paper: Cryptography & Network Security
Time: 3 Hours | Max Marks: 70

♦ **SECTION – A**

Answer any SIX questions ($6 \times 5 = 30$ Marks)

1.

- a) Explain security trends.
- b) Define steganography.
- c) Explain rotor machines.
- d) Define cryptanalysis.
- e) Explain strength of DES.
- f) Define AES evaluation criteria.
- g) Explain key management.
- h) Define digital signatures.



♦ **SECTION – B**

2.(a) Explain types of security attacks and services.

OR

(b) Explain substitution and transposition techniques with examples.

3.(a) Explain differential and linear cryptanalysis.

OR

(b) Explain AES cipher with working.

4.(a) Explain public-key cryptosystems and key distribution.

OR

(b) Explain elliptic curve cryptography.

5.(a) Explain hash functions and their security.

OR

(b) Explain Kerberos authentication system.

MODEL PAPER – 5
Bachelor of Computer Application (BCA)– Semester 5
Paper: Cryptography & Network Security
Time: 3 Hours | Max Marks: 70

♦ **SECTION – A**

Answer any SIX questions ($6 \times 5 = 30$ Marks)

1.

- a) Define network security model.
- b) Explain classical ciphers.
- c) Define Feistel structure.
- d) Explain AES rounds.
- e) Define RSA keys.
- f) Explain Diffie-Hellman process.
- g) Define MAC.
- h) Explain PKI.



♦ **SECTION – B**

2.(a) Explain security services and mechanisms in detail.

OR

(b) Explain classical encryption techniques and steganography.

3.(a) Explain block cipher design principles.

OR

(b) Explain AES encryption process.

4.(a) Explain RSA algorithm with key generation steps.

OR

(b) Explain elliptic curve cryptography and its advantages.

5.(a) Explain message authentication codes and hash functions.

OR

(b) Explain X.509 authentication service.

■ UNIT – I (Security Basics & Classical Ciphers)

- Explain security attacks (types and examples) ★★★★★
- Explain security services and mechanisms ★★★★★
- Describe model for network security ★★★★★
- Explain classical encryption techniques ★★★★★
- Explain substitution techniques ★★★★★
- Explain transposition techniques ★★★★★
- Explain rotor machines ★★★★★
- Explain steganography ★★★★★

■ UNIT – II (DES & AES)

- Explain block cipher principles ★★★★★
- Explain Data Encryption Standard (DES) ★★★★★
- Explain structure of DES ★★★★★
- Explain strength and weaknesses of DES ★★★★★
- Explain differential cryptanalysis ★★★★★
- Explain linear cryptanalysis ★★★★★
- Explain AES algorithm ★★★★★
- Explain AES design principles ★★★★★

■ UNIT – III (Public Key Cryptography)

- Explain public-key cryptosystem ★★★★★
- Explain RSA algorithm ★★★★★
- Explain key management in public-key cryptography ★★★★★
- Explain Diffie-Hellman key exchange ★★★★★
- Explain elliptic curve cryptography ★★★★★
- Explain advantages of ECC ★★★★★

■ UNIT – IV (Authentication & Security)

- Explain message authentication ★★★★★
- Explain message authentication codes (MAC) ★★★★★
- Explain hash functions ★★★★★
- Explain properties of hash functions ★★★★★
- Explain digital signatures ★★★★★
- Explain Kerberos authentication ★★★★★
- Explain X.509 authentication service ★★★★★
- Explain Public Key Infrastructure (PKI) ★★★★★

MODEL PAPER – 1
Bachelor of Computer Application (BCA)– Semester 5
Paper: Web Development Using PHP
Time: 3 Hours | Max Marks: 70

♦ SECTION – A

Answer any SIX questions ($6 \times 5 = 30$ Marks)

1.
 - a) Explain the evolution and features of PHP.
 - b) Discuss embedding PHP code within HTML pages.
 - c) Explain PHP data types with suitable examples.
 - d) Define arrays in PHP and explain types of arrays.
 - e) Explain control statements in PHP.
 - f) Describe user-defined functions in PHP.
 - g) Explain GET and POST methods in PHP.
 - h) Define sessions and their role in web applications.
-

♦ SECTION – B

Answer ALL questions ($4 \times 10 = 40$ Marks)

- 2.(a) Explain PHP syntax, variables, constants, and operators with examples.
OR
(b) Explain looping constructs and conditional statements in PHP with examples.
- 3.(a) Explain functions in PHP including call by value and call by reference.
OR
(b) Explain string manipulation, mathematical, and date-time functions in PHP.
- 4.(a) Explain form handling in PHP including validation and passing data between pages.
OR
(b) Explain database connectivity using PHP and MySQL with suitable examples.
- 5.(a) Explain file handling operations in PHP with examples.
OR
(b) Explain sessions, cookies, and state management in PHP applications.

MODEL PAPER – 2
Bachelor of Computer Application (BCA)– Semester 5
Paper: Web Development Using PHP
Time: 3 Hours | Max Marks: 70

♦ SECTION – A

Answer any SIX questions ($6 \times 5 = 30$ Marks)

1.
 - a) Explain advantages of PHP over other scripting languages.
 - b) Define scope of variables in PHP.
 - c) Explain associative arrays with examples.
 - d) Define switch statement in PHP.
 - e) Explain break and continue statements.
 - f) Define built-in functions in PHP.
 - g) Explain web form validation.
 - h) Define cookies and their types.
-

♦ SECTION – B

Answer ALL questions ($4 \times 10 = 40$ Marks)

- 2.(a) Explain installation and configuration of PHP and Apache.
OR
(b) Explain PHP expressions and operator precedence with examples.
- 3.(a) Explain looping statements (while, for, do-while) with examples.
OR
(b) Explain string and mathematical functions in PHP.
- 4.(a) Explain capturing and processing form data using `$_GET` and `$_POST`.
OR
(b) Explain database operations (insert, update, delete) using PHP and MySQL.
- 5.(a) Explain file handling including opening, reading, and writing files.
OR
(b) Explain sessions and session management with examples.

MODEL PAPER – 3
Bachelor of Computer Application (BCA)– Semester 5
Paper: Web Development Using PHP
Time: 3 Hours | Max Marks: 70

♦ SECTION – A

Answer any SIX questions ($6 \times 5 = 30$ Marks)

1.
 - a) Define PHP script execution process.
 - b) Explain constants and their usage.
 - c) Define multi-dimensional arrays.
 - d) Explain exit statement.
 - e) Define function arguments.
 - f) Explain session variables.
 - g) Define database query.
 - h) Explain file permissions.



♦ SECTION – B

2.(a) Explain PHP syntax and embedding with HTML.

OR

(b) Explain data types and variables with examples.

3.(a) Explain functions including passing arguments and return values.

OR

(b) Explain date and time functions in PHP.

4.(a) Explain form handling and input validation techniques.

OR

(b) Explain connecting PHP with MySQL and retrieving data.

5.(a) Explain file system functions and directory handling.

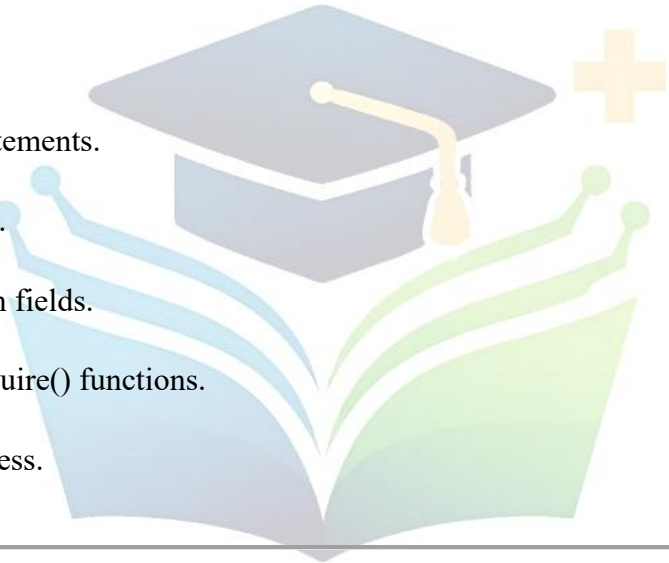
OR

(b) Explain cookies and sessions with differences.

MODEL PAPER – 4
Bachelor of Computer Application (BCA)– Semester 5
Paper: Web Development Using PHP
Time: 3 Hours | Max Marks: 70

♦ **SECTION – A**

Answer any SIX questions ($6 \times 5 = 30$ Marks)

1.
 - a) Define PHP comments and syntax rules.
 - b) Explain variable scope types.
 - c) Define array functions.
 - d) Explain loop control statements.
 - e) Define recursion in PHP.
 - f) Explain multi-value form fields.
 - g) Define include() and require() functions.
 - h) Explain file upload process.
- 

♦ **SECTION – B**

2.(a) Explain PHP variables, constants, and expressions.

OR

(b) Explain control structures and nested loops with examples.

3.(a) Explain functions and recursion with examples.

OR

(b) Explain arrays and string handling functions.

4.(a) Explain form processing and data validation.

OR

(b) Explain database connectivity and query execution.

5.

(a) Explain file handling and file upload techniques.

OR

(b) Explain code reuse using include() and require().

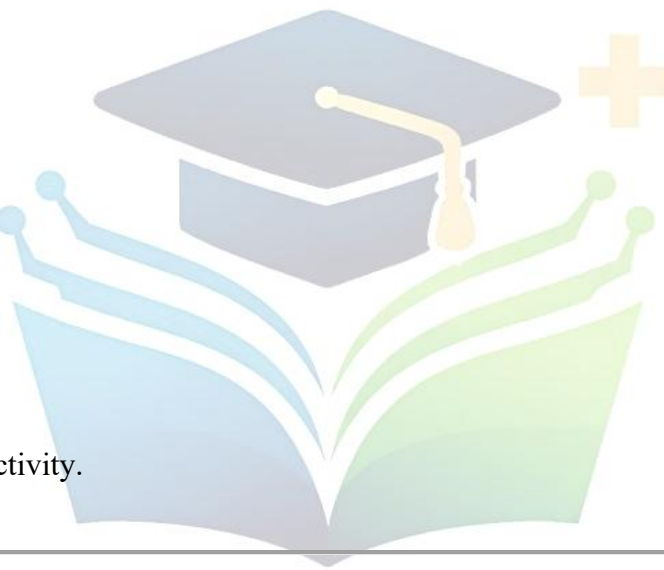
MODEL PAPER – 5
Bachelor of Computer Application (BCA)– Semester 5
Paper: Web Development Using PHP
Time: 3 Hours | Max Marks: 70

♦ **SECTION – A**

Answer any SIX questions (6 × 5 = 30 Marks)

1.

- a) Define PHP and its applications.
- b) Explain string functions.
- c) Define arrays and types.
- d) Explain functions.
- e) Define GET and POST.
- f) Explain sessions.
- g) Define file handling.
- h) Explain database connectivity.



♦ **SECTION – B**

2.(a) Explain PHP basics including syntax and variables.

OR

(b) Explain operators and control statements.

3.(a) Explain functions and argument passing techniques.

OR

(b) Explain arrays and string manipulation.

4.(a) Explain form handling and validation.

OR

(b) Explain PHP with MySQL operations.

5.(a) Explain file handling and directory operations.

OR

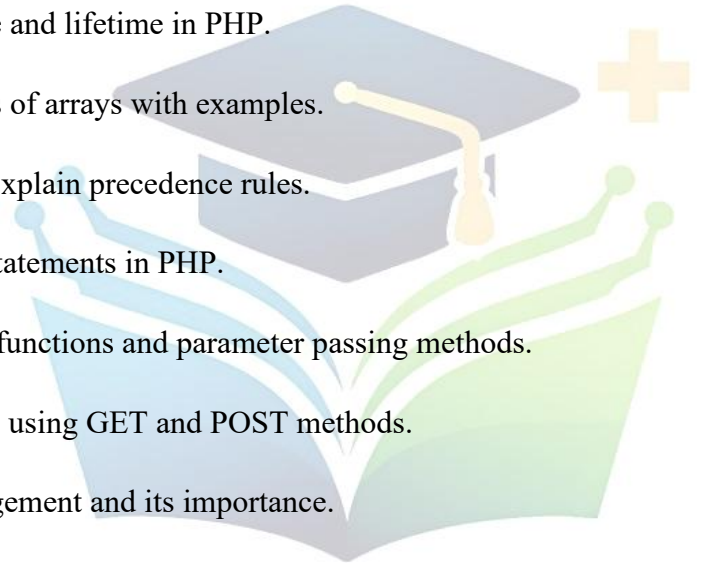
(b) Explain sessions and cookies.

MODEL PAPER – 6
Bachelor of Computer Application (BCA)– Semester 5
Paper: Web Development Using PHP
Time: 3 Hours | Max Marks: 70

♦ **SECTION – A**

Answer any SIX questions ($6 \times 5 = 30$ Marks)

1.

- a) Explain PHP architecture and execution process.
 - b) Discuss variable scope and lifetime in PHP.
 - c) Explain different types of arrays with examples.
 - d) Define operators and explain precedence rules.
 - e) Explain control flow statements in PHP.
 - f) Describe user-defined functions and parameter passing methods.
 - g) Explain form handling using GET and POST methods.
 - h) Discuss session management and its importance.
- 

♦ **SECTION – B**

Answer ALL questions ($4 \times 10 = 40$ Marks)

- 2.(a) Explain PHP syntax, variables, constants, and expressions with examples.

OR

- (b) Explain conditional and looping statements with suitable examples.

- 3.(a) Explain functions including call by value and call by reference with examples.

OR

- (b) Explain string manipulation, mathematical, and date-time functions in PHP.

- 4.(a) Explain web form processing, validation, and passing data between pages.

OR

- (b) Explain PHP and MySQL integration including insert, update, delete, and select operations.

5.(a) Explain file handling including reading, writing, and file upload techniques.

OR

(b) Explain cookies, sessions, and state management in PHP applications.

UNIT WISE IMPORANT QUESTIONS

UNIT – I (Basics of PHP)

- Explain features and advantages of PHP ★★★★★
- Explain PHP installation and configuration ★★★★★
- Explain embedding PHP in HTML ★★★★★
- Define variables, constants, and scope ★★★★★
- Explain data types in PHP ★★★★★
- Explain arrays (indexed, associative, multidimensional) ★★★★★
- Explain strings and string operations ★★★★★
- Explain operators and precedence ★★★★★

UNIT – II (Control & Functions)

- Explain conditional statements (if, switch) ★★★★★
- Explain looping statements (for, while, do-while) ★★★★★
- Explain break, continue, exit ★★★★★
- Explain user-defined functions ★★★★★
- Call by value vs call by reference ★★★★★
- Explain string functions ★★★★★
- Explain mathematical functions ★★★★★
- Explain date and time functions ★★★★★

UNIT – III (Forms & Database)

- Explain web form processing in PHP ★★★★★
- Explain GET and POST methods ★★★★★
- Explain form validation ★★★★★
- Explain cookies ★★★★★
- Explain session handling ★★★★★
- Explain PHP and MySQL connection ★★★★★
- Explain insert, update, delete operations ★★★★★
- Explain retrieving data from database ★★★★★

■ UNIT – IV (Files & Advanced PHP)

- Explain file handling (read/write) ★ ★ ★ ★ ★
- Explain file upload process ★ ★ ★ ★ ★
- Explain include() and require() ★ ★ ★ ★ ★
- Explain directory handling ★ ★ ★ ★ ★
- Explain file permissions ★ ★ ★ ★ ★
- Explain OOP concepts in PHP ★ ★ ★ ★ ★



Smart Study
— PLUS —

MODEL PAPER – 1
Bachelor of Computer Application (BCA)– Semester 5
Paper: Python Programming
Time: 3 Hours | Max Marks: 70

♦ SECTION – A

Answer any SIX questions ($6 \times 5 = 30$ Marks)

1.
 - a) Define Python and explain its applications.
 - b) Explain identifiers and keywords with examples.
 - c) Define data types and type conversion in Python.
 - d) Explain string operations with examples.
 - e) Define conditional statements in Python.
 - f) Explain loops with examples.
 - g) Define functions in Python.
 - h) Explain file handling in Python.
-

♦ SECTION – B

Answer ALL questions ($4 \times 10 = 40$ Marks)

- 2.(a) Explain structure of Python program and input/output statements.

OR

- (b) Explain operators and precedence with examples.

- 3.(a) Explain control flow statements including loops and nested loops.

OR

- (b) Explain strings and string manipulation techniques.

- 4.(a) Explain functions including default arguments and lambda functions.

OR

- (b) Explain lists, tuples, and dictionaries with examples.

- 5.(a) Explain file handling including text and binary files.

OR

- (b) Explain exception handling with examples.

MODEL PAPER – 2
Bachelor of Computer Application (BCA)– Semester 5
Paper: Python Programming
Time: 3 Hours | Max Marks: 70

♦ SECTION – A

Answer any SIX questions ($6 \times 5 = 30$ Marks)

1.
 - a) Discuss the significance of Python in modern application development.
 - b) Analyze operator precedence and associativity with suitable examples.
 - c) Explain string immutability and its implications.
 - d) Differentiate between mutable and immutable data types with examples.
 - e) Explain scope resolution and lifetime of variables in Python.
 - f) Describe the role of lambda functions and their limitations.
 - g) Explain module import mechanisms and namespace handling.
 - h) Discuss exception hierarchy and custom exception handling.
-

♦ SECTION – B

Answer ALL questions ($4 \times 10 = 40$ Marks)

- 2.(a) Explain Python program structure, data types, and expressions with examples.
OR
(b) Analyze control flow mechanisms including nested loops and decision structures.
- 3.(a) Explain function design including recursion, default arguments, and higher-order functions.
OR
(b) Discuss Python data structures (lists, tuples, dictionaries) with operations and use cases.
- 4.(a) Explain object-oriented programming concepts including encapsulation, inheritance, and polymorphism with examples.
OR
(b) Analyze modules and packages with respect to namespace and code reusability.
- 5.(a) Explain file handling mechanisms including text, binary, CSV, and JSON processing.
OR
(b) Discuss exception handling strategies and data visualization techniques in Python.

MODEL PAPER – 3
Bachelor of Computer Application (BCA)– Semester 5
Paper: Python Programming
Time: 3 Hours | Max Marks: 70

♦ SECTION – A

Answer any SIX questions ($6 \times 5 = 30$ Marks)

1.
 - a) Explain features of Python and its applications in modern computing.
 - b) Discuss operator precedence and associativity with examples.
 - c) Explain string operations including slicing and formatting.
 - d) Differentiate mutable and immutable data types with examples.
 - e) Explain scope and lifetime of variables.
 - f) Describe lambda functions with suitable examples.
 - g) Explain modules, packages, and namespaces.
 - h) Discuss exception handling and its importance.
-

♦ SECTION – B

Answer ALL questions ($4 \times 10 = 40$ Marks)

2.(a) Explain Python program structure, data types, expressions, and input/output operations with examples.

OR

(b) Analyze control flow statements including conditional statements, loops, and nested structures.

3.(a) Explain functions in Python including recursion, default arguments, and command-line arguments with examples.

OR

(b) Discuss Python data structures (lists, tuples, dictionaries) and their operations with examples.

4.(a) Explain object-oriented programming concepts including classes, objects, inheritance, and polymorphism with examples.

OR

(b) Analyze modules and packages, including import mechanisms and namespace management.

5.(a) Explain file handling including text, binary, CSV, and JSON files with examples.

OR

(b) Discuss exception handling, custom exceptions, and data visualization techniques in Python.

MODEL PAPER – 4
Bachelor of Computer Application (BCA)– Semester 5
Paper: Python Programming
Time: 3 Hours | Max Marks: 70

♦ **SECTION – A**

Answer any SIX questions ($6 \times 5 = 30$ Marks)

1.
 - a) Explain dynamic typing in Python with examples.
 - b) Discuss the use of indentation in Python syntax.
 - c) Explain string immutability with suitable illustration.
 - d) Define iterable objects and explain their types.
 - e) Explain the concept of higher-order functions.
 - f) Describe argument passing mechanisms in Python.
 - g) Explain the role of `__init__()` and `__del__()` methods.
 - h) Discuss the purpose of exception propagation.
-

♦ **SECTION – B**

Answer ALL questions ($4 \times 10 = 40$ Marks)

2.(a) Analyze Python expressions, operator precedence, and type conversions with examples.

OR

(b) Explain decision-making statements and looping constructs with nested examples.

3.(a) Explain function design including recursion, lambda expressions, and argument types with examples.

OR

(b) Discuss Python collections (list, tuple, dictionary) with internal working and applications.

4.(a) Explain object-oriented concepts including encapsulation and method overriding with examples.

OR

(b) Analyze modules, packages, and namespace resolution in Python.

5.(a) Explain advanced file handling including CSV, JSON, and binary file operations with examples.

OR

(b) Explain exception handling including user-defined exceptions and multiple exception blocks.

MODEL PAPER – 5
Bachelor of Computer Application (BCA)– Semester 5
Paper: Python Programming
Time: 3 Hours | Max Marks: 70

◇ SECTION – A

Answer any SIX questions ($6 \times 5 = 30$ Marks)

1.
 - a) Explain dynamic typing in Python with suitable examples.
 - b) Discuss operator precedence and expression evaluation.
 - c) Explain string slicing and string formatting techniques.
 - d) Differentiate mutable and immutable objects with examples.
 - e) Explain scope and lifetime of variables.
 - f) Describe lambda functions and their applications.
 - g) Explain modules and namespace concept in Python.
 - h) Discuss exception handling and its types.
-

◇ SECTION – B

Answer ALL questions ($4 \times 10 = 40$ Marks)

2.(a) Explain Python program structure, data types, and input/output operations with examples.

OR

(b) Explain control flow statements including conditional and looping constructs with examples.

3.(a) Explain functions including recursion, default arguments, and argument passing techniques.

OR

(b) Explain Python data structures (lists, tuples, dictionaries) with operations and examples.

4.(a) Explain object-oriented programming concepts including classes, inheritance, and polymorphism with examples.

OR

(b) Explain modules, packages, and importing mechanisms in Python.

5.(a) Explain file handling including text, binary, CSV, and JSON file operations with examples.

OR

(b) Explain exception handling including try-except-finally and user-defined exceptions.

UNIT WISE IMPORTANT QUESTIONS

UNIT – I (Basics, Strings & Control Flow)

- History and applications of Python ★★★★★
- Structure of Python program ★★★★★
- Identifiers and keywords ★★★★★
- Operators and precedence ★★★★★
- Data types and type conversion ★★★★★
- Input and output statements ★★★★★
- Strings and string operations ★★★★★
- String slicing and formatting ★★★★★
- Conditional statements ★★★★★
- Looping statements (for, while) ★★★★★
- break, continue, pass statements ★★★★★

UNIT – II (Functions & Data Structures)

- Built-in functions ★★★★★
- User-defined functions ★★★★★
- Scope and lifetime of variables ★★★★★
- Default parameters ★★★★★
- Lambda functions ★★★★★
- Command line arguments ★★★★★
- Lists and operations ★★★★★
- Tuples ★★★★★
- Dictionaries ★★★★★
- Mutable vs Immutable objects ★★★★★
- Passing lists/tuples/dictionaries to functions ★★★★★
- Numpy module basics ★★★★★

UNIT – III (Modules & OOP)

- Modules and import statement ★★★★★
- Creating user-defined modules ★★★★★
- Packages in Python ★★★★★
- Namespaces and scope ★★★★★
- Date and time module ★★★★★
- Classes and objects ★★★★★
- Constructors and destructors ★★★★★
- Encapsulation and data hiding ★★★★★
- Inheritance ★★★★★
- Method overriding ★★★★★
- Polymorphism ★★★★★

UNIT – IV (Files, Exceptions & Visualization)

- File handling (text and binary files) ★★★★★
- Reading and writing files ★★★★★
- Pickle module ★★★★★
- CSV file handling ★★★★★
- JSON file handling ★★★★★
- Exception handling (try-except) ★★★★★
- raise statement ★★★★★
- Exception hierarchy ★★★★★
- Data visualization ★★★★★
- Plotting graphs (2D, 3D) ★★★★★
- Histogram and pie charts ★★★★★



Smart Study
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