F–6090

Sub. Code
7BCE1C1

B.Sc. DEGREE EXAMINATION, NOVEMBER 2021

First Semester

Computer Science

PROGRAMMING IN C

(CBCS – 2017 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

1. What are C tokens?

2. Write the rules for declaration of variables.

3. What is the purpose of getch( ) function?

4. What is ternary operator?

5. Define two dimensional array.

6. How strings are declared?

7. Define function prototype.

8. How structure members are accessed?

9. What is pointer?

10. Write the function to open and close the file in C language.

Part B (5 × 5 = 25)

Answer **all** questions, choosing either (a) or (b).

11. (a) Describe the basic structure of C program.

Or

(b) Write a note on operator precedence and associativity.

12. (a) Discuss briefly about switch statement with example program.

Or

(b) What are jumps in loops? Explain.

13. (a) Brief on multidimensional arrays.

Or

(b) Write a program to check whether a given string is palindrome or not.

14. (a) What is recursion? Give an example.

Or

(b) Compare structure and union.

15. (a) Write about chain of pointers.

Or

(b) What are command line arguments? Illustrate with an example program.

Part C

(3 × 10 = 30)

Answer any **three** questions.

16. What is an expression? Explain evaluation of expression with example.

17. Explain about decision making statements in C.

18. List and explain any five string handling functions.

19. Explain various categories of user defined functions.

20. Explain about IO operations on files.

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F–6091

Sub. Code
7BCE2C1

B.Sc. DEGREE EXAMINATION, NOVEMBER 2021.

Second Semester

Computer Science

OBJECT ORIENTED PROGRAMMING WITH C++

(CBCS – 2017 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A $(10 \times 2 = 20)$

Answer **all** questions.

1. What are the application of OOP?
2. Define Data Abstraction.
3. Define member function.
4. What is static binding?
5. What is an abstract class?
6. Define virtual base class. Give an example.
7. What is virtual function?
8. What are the differences between pointers to constants and constant pointers?
9. Define 'this' pointer.
10. What are the advantages of template function in C++?

Part B (5 × 5 = 25)

Answer **all** questions, choosing either (a) or (b).

11. (a) What are the features of Object oriented programming?

Or

(b) Describe data types in C++ in Details.

12. (a) Write a C++ program to illustrate the static function.

Or

(b) Explain the copy constructors with an example.

13. (a) Explain briefly about function overloading with a suitable example.

Or

(b) Write the rules for overloading operators.

14. (a) Explain use of pointer in C++.

Or

(b) Define pure virtual function. Give an example program.

15. (a) Write a simple program to read content from one file and write them into another file.

Or

(b) Discuss the command line arguments in detail.

Part C

$(3 \times 10 = 30)$

Answer any **three** questions.

16. Explain the basic concepts of Object oriented programming.

17. Discuss all constructor types and destructors with example.

18. Write a program to add two complex numbers using operator overloading concept.

19. Write a C++ program demonstrating use of the pure virtual function with the use of base and derived classes.

20. Explain the use of ifstream and ofstream classes for file input and output.

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F–6092	Sub. Code
	7BCE3C1

B.Sc. DEGREE EXAMINATION, NOVEMBER 2021.

Third Semester

Computer Science

DATA STRUCTURES AND COMPUTER ALGORITHMS

(CBCS – 2017 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A $(10 \times 2 = 20)$

Answer **all** questions.

1. Define data structure. Give an example.

2. Give an example for single and two dimensional arrays.

3. Give an application for stack and queue.

4. Draw a circular queue and list the advantage of circular queue.

5. Differentiate tree and binary tree.

6. Draw an expression tree and state its advantage.

7. Define the terms Finiteness and Definiteness with respect to an algorithm.

8. State the time complexity of merge sort and quick sort.

9. Define Connected graph and give an example.

10. State the objective function and the constraints involved in knapsack problem.

Part B (5 × 5 = 25)

Answer **all** questions, choosing either (a) or (b).

11. (a) Explain insertion and deletion in single linked list

Or

(b) Explain how to perform search and reversal in a doubly linked list.

12. (a) Explain how stack can be implemented using arrays and linked list.

Or

(b) Explain insertion and deletion operations on queue with suitable example.

13. (a) Explain how the Inorder successor can be found in a Threaded binary tree.

Or

(b) Construct the binary tree from the following preorder and inorder traversal sequence: Preorder: ABCDEF Inorder: CBAEDF.

14. (a) Sort the following set of elements using merge sort. Provide stepwise explanation. 12, 24, 8, 71, 4, 23, 6, 80.

Or

(b) Write an algorithm that performs binary search. Analyse the algorithm with respect to space and time complexity

15. (a) Explain Kruskal algorithm with an example.

Or

(b) Explain the graph traversal techniques with example.

Part C

$(3 \times 10 = 30)$

Answer any **three** questions.

16. Explain with example how insertion and deletion can be performed on a circular linked list under the following three conditions.

    (a) Element is to be inserted/deleted at the beginning

    (b) Element is to be inserted/deleted before a particular element

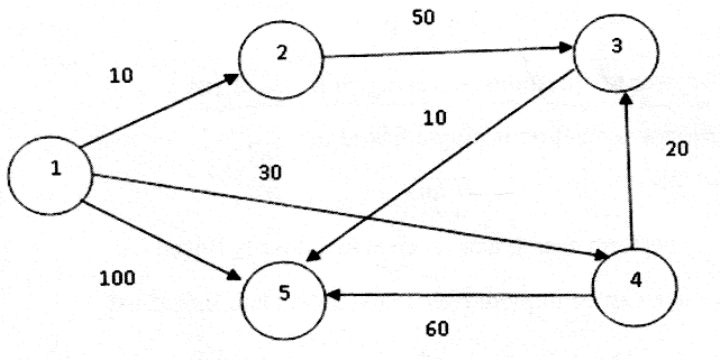
    (c) Element is to be inserted/deleted at the end.

17. Write the algorithm to convert infix to postfix expression using stacks. Explain with an example.

18. Explain the various ways of representing a binary tree and explain the various tree traversal techniques.

19. Explain Strassen's Matrix multiplication and mention its advantage.

20. Apply Dijsktra's algorithm for the following graph and find the shortest path from vertex 1 to all other vertices.



F–6093	Sub. Code
	7BCE4C1

B.Sc. DEGREE EXAMINATION, NOVEMBER 2021.

Fourth Semester

Computer Science

JAVA PROGRAMMING

(CBCS 2017 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

1. Define JVM.

2. What is meant by Variables?

3. Define Logical Operator.

4. Write the Syntax for Do-While?

5. Define Objects.

6. What is meant by Wrapper Classes?

7. Define Threads.

8. Write the Syntax for Exception Handling Code.

9. How Applets differ from Applications?

10. How to draw Polygons using Graphics Programming?

Part B (5 × 5 = 25)

Answer **all** questions, choosing either (a) or (b).

11. (a) Write short notes on History of Java.

Or

(b) Explain Java Program Structure.

12. (a) Discuss about Evaluation of Expression, in Java with examples.

Or

(b) Explain about Operator Precedence and Associativity.

13. (a) Explain about Constructors.

Or

(b) Discuss about overriding methods.

14. (a) How to add a class to a Package?

Or

(b) How to implementing the 'Runnable' interfaces?

15. (a) Explain about how to pass parameters to Applets?

Or

(b) How to use the Control Loops in Applets?

Part C (3 × 10 = 30)

Answer any **three** questions.

16. Briefly explain about how to implement a Java Programming.

17. Give a Brief explanation about Decision making and looping with suitable example

18. Describe the following with example

    (a) Arrays

    (b) Strings

    (c) Vectors.

19. Discuss briefly about Multithreaded Programming in Java.

20. Explain about Graphics Programming with suitable examples.

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F–6094

Sub. Code
7BCE5C1

B.Sc. DEGREE EXAMINATION, NOVEMBER 2021

Fifth Semester

Computer Science

OPERATING SYSTEM

(CBCS – 2017 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

1. What is an operating system?

2. What is a process?

3. What is mutual exclusion?

4. What is semaphores?

5. What all are the advantages of scheduling a process?

6. Define Deadlock.

7. What is internal fragmentation?

8. What is virtual memory?

9. Why we need disk scheduling?

10. List the attributes in the file control block.

Part B (5 × 5 = 25)

Answer **all** questions choosing either (a) or (b).

11. (a) Discuss in detail the goals of operating system.

Or

(b) Describe message passing system in Inter process communication.

12. (a) Explain Petersons solution in detail with appropriate code.

Or

(b) Discuss in detail the hardware solution to mutual exclusion.

13. (a) Explain in detail the necessary and sufficient condition of deadlock?

Or

(b) Explain what will happen if the time quantum of the round robin scheduling is very large? Give example

14. (a) Explain paging in detail with diagram.

Or

(b) Discuss in brief the virtual memory management.

15. (a) Discuss in detail about hierarchy in file system.

Or

(b) Write a short note on file allocation methods?

Part C

$(3 \times 10 = 30)$

Answer any **three** questions.

16. With neat diagram explain about various state of a process?

17. Explain about concurrent programming in detail.

18. Consider the following set of processes, with the length of the CPU-burst time given in Milliseconds.

Process	Burst time	Priority
P_1	10	3
P_2	1	1
P_3	2	3
P_4	1	4
P_5	5	2

The processes are assumed to have arrived in the order P_1, P_2, P_3, P_4, P_5 all at time 0. Draw Gantt charts llustrating the execution of these processes using FCFS,SJF and priority based scheduling algorithm.

19. Explain all the page replacement algorithms in detail.

20. Explain the various disk scheduling algorithm in detail.

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F–6095	Sub. Code
	7BCE5C2

B.Sc. DEGREE EXAMINATION, NOVEMBER 2021

Fifth Semester

Computer Science

RELATIONAL DATABASE MANAGEMENT SYSTEMS

(CBCS – 2017 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

1. List few popular applications of DBMS.
2. What are attributes?
3. Define the term Domain.
4. What are the uses of functional dependencies?
5. What is distributed system?
6. Write the ACID properties.
7. List the table modification commands in SQL
8. Define Synonyms.
9. When is a declare statement required'?
10. What is a stored procedure?

Part B (5 × 5 = 25)

Answer **all** questions choosing either (a) or (b).

11. (a) Write the purpose of database system.

Or

(b) Write the role of Database users and administrators.

12. (a) Describe the features of good relational design.

Or

(b) Briefly explain the database design process.

13. (a) Give a note on client server architecture.

Or

(b) Compare Homogeneous and Heterogeneous databases.

14. (a) Write the syntax for table creation and give example.

Or

(b) Discuss on user privileges and roles.

15. (a) Explain the uses of database triggers.

Or

(b) What is function in PL/SQL? Write simple function to calculate square of given number with the help of function parameters.

Part C

$(3 \times 10 = 30)$

Answer any **three** questions.

16. Draw an E-R diagram for college management system.

17. What is Normalization? Explain 1NF and 2NF.

18. Write a detailed note on I/O parallelism.

19. What is Data Integrity? Explain.

20. Explain about package with example.

F–6096	Sub. Code
	7BCEE1A

B.Sc. DEGREE EXAMINATION, NOVEMBER 2021.

Fifth Semester

Computer Science

Elective : DATA MINING AND DATA WAREHOUSING

(CBCS – 2017 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A $(10 \times 2 = 20)$

Answer **all** questions.

1. List out the kind of data repositories to perform the data mining task.
2. What is data warehouse?
3. State the role of Load Manager.
4. What is meant by Tuning?
5. What is data mining?
6. Explain the need of transactional database in Data mining.
7. What is statistical database?
8. List any two Neural Network algorithms for Data mining.
9. What is meant by frequent itemset mining?
10. Define Distributed Algorithms.

Part B (5 × 5 = 25)

Answer **all** questions, choosing either (a) or (b).

11. (a) Explain in detail about the three-tier data warehouse architecture.

Or

(b) Elucidate the typical process flow within a DWH.

12. (a) Elucidate the role of Process and Warehouse Managers.

Or

(b) Confer the need of Accessing the Performance of Tuning the DWH.

13. (a) Discuss the impact of Datamining on social environment.

Or

(b) Elucidate the steps of knowledge extraction from database.

14. (a) What are the differences between the OLTP and OLAP systems?

Or

(b) Explain the basic algorithm of decision tree induction.

15. (a) Confer in specify on the varieties of patterns can be mined.

Or

(b) How the association rule mining could be performed on multidimensional data cubes.

Part C

$(3 \times 10 = 30)$

Answer any **three** questions.

16. Explain the working principle of Data warehouse delivery method.

17. Discuss the channel for Assessing Performance of DWH managers

18. Elucidate the Datamining metrics in detail.

19. Describe in detail about the Similarity measures on DM.

20. Explain the importance of Advanced Association rule techniques with examples.

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F–6097	Sub. Code
	7BCEE1B

B.Sc. DEGREE EXAMINATION, NOVEMBER 2021.

Fifth Semester

Computer Science

Elective – WEB DESIGN

(CBCS – 2017 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

1. Write the format of HTML program.

2. Mention some text formatting tags.

3. What are embedded style sheets?

4. Give the syntax of CSS rule.

5. Why JavaScript has been called dynamically typed language?

6. What is the use of type of operator?

7. How to create a function in JavaScript?

8. What is the use of window object?

9. What is DOM?

10. Define Document Type Declaration.

Part B (5 × 5 = 25)

Answer **all** questions, choosing either (a) or (b).

11. (a) Explain the use of tables in HTML.

Or

(b) Write an HTML document to provide a form that collect name and telephone numbers.

12. (a) What is CSS? Differentiate between external and internal stylesheet.

Or

(b) List and explain some primary CSS text properties.

13. (a) Illustrate increment and decrement operators with example.

Or

(b) Give a note on break and continue statement.

14. (a) What is recursion? Give example.

Or

(b) How to create an array in JavaScript?

15. (a) Write a note traversing and modifying a DOM tree.

Or

(b) Briefly explain XML Namespaces.

Part C

$(3 \times 10 = 30)$

Answer any **three** questions.

16. Explain various types of lists in HTML.

17. What are the types of CSS? Explain any two with example.

18. Write a JavaScript program to develop the arithmetic calculator.

19. Discuss about Math and String object in JavaScript.

20. Explain event bubbling with an example program.

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F–6098	Sub. Code
	7BCEE2A

B.Sc. DEGREE EXAMINATION, NOVEMBER 2021

Fifth Semester

Computer Science

Elective – DIGITAL PRINCIPLES AND COMPUTER ORGANIZATION

(CBCS – 2017 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

1. Convert 11010_2 to decimal number.
2. What is called Logic Gate?
3. Write any two Boolean Law.
4. What is called Encoder and Decoder?
5. Mention the rules for Binary Addition operation.
6. What is the Two's complement of 11010101_2?
7. What is meant by Register?
8. What is called Micro Programmed Control?
9. What is meant by Parallel Processing?
10. Define Auxiliary Memory.

Part B (5 × 5 = 25)

Answer **all** questions, choosing either (a) or (b).

11. (a) Define Number System. Explain its type.

Or

(b) Discuss the functionality of Universal Logic Gates.

12. (a) State and Prove Demorganlaws.

Or

(b) Discuss the functionality of Multiplexers.

13. (a) Solve: (i) $11101100_2 + 10001000_2$

(ii) $11101100_2 - 10001000_2$

Or

(b) Find one's complement of (i) 11101100_2 (ii) 10001000_2

14. (a) Describe in brief about Common Bus System.

Or

(b) Discuss Symbolic Micro Instruction with an example.

15. (a) What is Stack Organization? Brief it.

Or

(b) Write a note on I/O interface.

Part C

(3 × 10 = 30)

Answer any **three** questions.

16. Explain ASCII code, Excess-3 code and Gray code in detail.

17. Describe the architecture of Seven- Segment Decoders.

18. Discuss about Arithmetic Building Blocks with a neat illustration.

19. What is Addressing? Explain it with an example.

20. Difference between CISC and RISC.

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F–6099	Sub. Code
	7BCE6C1

B.Sc. DEGREE EXAMINATION, NOVEMBER 2021.

Sixth Semester

Computer Science

COMPUTER NETWORKS

(CBCS – 2017 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A $(10 \times 2 = 20)$

Answer **all** questions.

1. Which principles in used RF Id technology?

2. Define broad casting and multi- casting.

3. Draw the electro-magnetic sprecturem and its uses for communication.

4. Which principle is used in infrared transmission?

5. What is meant by byte stuffing.

6. Write the principle used in 'Selective Repeat' of handling errors.

7. What is meant by store- and – forward packet switching?

8. What is meant by flooding?

9. Draw a portion of the internet domain name space.

10. What is meant by voice over IP?

Part B (5 × 5 = 25)

Answer **all** questions, choosing either (a) or (b).

11. (a) Explain about protocol Hierchies in detail.

Or

(b) Explain about the network hardware and network software.

12. (a) Explain about co-axial cable media.

Or

(b) Explain about low – earth orbit satellites in detail.

13. (a) Explain the static –channel allocation.

Or

(b) Describe about wireless LAN protocols.

14. (a) Explain about the implementation of connection less service in network layer.

Or

(b) Describe about Hierchical routing in detail.

15. (a) Describe about the SMTP protocol.

Or

(b) Describe about substitution ciphers in detail.

Part C

$(3 \times 10 = 30)$

Answer any **three** questions.

16. Describe the ISO and TCP/IP reference model.

17. Describe the structure of the telephone system.

18. Describe about sliding window protocols.

19. Explain about multiplexing and crash recovery.

20. Describe the principle of symmetric key algorthims.

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F–6100

Sub. Code
7BCE6C2

B.Sc. DEGREE EXAMINATION, NOVEMBER 2021.

Sixth Semester

Computer Science

COMPUTER GRAPHICS

(CBCS – 2017 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

1. What is meant by line and line segment?

2. Define vector

3. How will you create polygons?

4. What are the display devices?

5. What are the types of transformations?

6. What is meant by inverse transformation?

7. What is meant by clipping?

8. What is the principle used in Sutherland Hodgman algorithm?

9. What are the input devices used in interaction.

10. What is meant by echoing?

Part B (5 × 5 = 25)

Answer **all** questions, choosing either (a) or (b).

11. (a) Explain about the Antialiasing lines .

Or

(b) Write about the, display the frame Buffer.

12. (a) Explain about the flood fill, boundary fill algorithm.

Or

(b) Explain the polygon Representations.

13. (a) Describe about the rotation in an arbitrary point.

Or

(b) Describe the segment table in detail.

14. (a) Describe the Adding clipping to the system.

Or

(b) Explain about the multiple windowing in detail.

15. (a) Explain the simulating a pick with a locator.

Or

(b) Explain the input – Device handling Algorithms in detail.

Part C (3 × 10 = 30)

Answer any **three** questions.

16. Describe about the Bresenham's Algorithm.

17. Describe the display file interpreter a display file structure.

18. Explain about co-ordinate transformations.

19. Explain about the cohen Sutherland clipping algorithm.

20. Describe about the sampled devices in detail.

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F–6101	Sub. Code
	7BCE6C3

B.Sc. DEGREE EXAMINATION, NOVEMBER 2021.

Sixth Semester

Computer Science

SOFTWARE ENGINEERING

(CBCS – 2017 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

1. What is meant by software engineering?

2. What are the size factors of the software?

3. Define : COCOMO model of software cost estimation.

4. What are the categories of formal specification techniques?

5. What is meant by modularization?

6. Define : Milestone-in software engineering.

7. What are the phases of system implementation process?

8. What is the need for quality assurence?

9. Why software maintenance is necessary?

10. What are the maintenance tools present in the software engineering?

Part B (5 × 5 = 25)

Answer **all** questions, choosing either (a) or (b).

11. (a) Explain the productivity factors in developing a software product.

Or

(b) Explain how you will plan a software development process.

12. (a) Explain the desirable properties that a software requirements specification should possess.

Or

(b) How will you estimate the software maintenance costs?

13. (a) Explain about the structured English and structured flow charts in detail.

Or

(b) Describe about structure in software design.

14. (a) What are the software quality assurance processes?

Or

(b) Explain about the structured coding techniques.

15. (a) Explain the types of software maintenance in detail.

Or

(b) Explain about the configuration management.

Part C

$(3 \times 10 = 30)$

Answer any **three** questions.

16. Describe the factors that influence the quality and productivity.

17. Describe about the expert judgement and Delphi cost estimation techniques in detail.

18. Describe about procedure templates and Psuedo code in detail.

19. Describe about the walk through and inspections.

20. Explain the software maintenance tools in detail.

F–6102	Sub. Code
	7BCEE3A

B.Sc. DEGREE EXAMINATION, NOVEMBER 2021.

Sixth Semester

Computer Science

Elective — VB.NET AND ASP.NET PROGRAMMING

(CBCS – 2017 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A $(10 \times 2 = 20)$

Answer **all** questions.

1. What are the data types used in VB.NET?

2. Write the syntax of while loop.

3. Write the syntax for create picture boxes in VB.NET.

4. How will you create panels in VB.NET?

5. Write the syntax of file stream class.

6. What is meant by polymorphism?

7. Write the syntax of button web control.

8. Write the syntax of HTML anchor control.

9. Write the syntax for SQL select statement in ADO.NET.

10. Write the syntax of SQL update statement.

Part B (5 × 5 = 25)

Answer **all** questions, choosing either (a) or (b).

11. (a) Explain the select case and switch statement with example.

Or

(b) Explain about the sub procedures.

12. (a) Describe the tree and list views.

Or

(b) Explain the rich text box and labels window control.

13. (a) Describe the pen class and brush class.

Or

(b) Explain the file mode enumeration.

14. (a) Explain the types of list controls in ASP.NET.

Or

(b) Explain the range validator control.

15. (a) Explain with syntax of ExcuteNonQuery ( ) method.

Or

(b) Explain with syntax of SQL delete statement.

Part C

$(3 \times 10 = 30)$

Answer any **three** questions.

16. Explain about the unstructured exception handling.

17. How you will create checked list boxes.

18. Describe the graphics class with example.

19. Describe about the RICH CONTROLS (Add rotator and Calender).

20. Describe the characteristics of ADO.NET.

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F–6103	Sub. Code
	7BCEE3B

B.Sc. DEGREE EXAMINATION, NOVEMBER 2021.

Sixth Semester

Computer Science

Elective — PROGRAMMING WITH LINUX APACHE, MYSQL AND PHP (LAMP)

(CBCiS – 2017 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A $(10 \times 2 = 20)$

Answer **all** questions.

1. What are the operators used PHP programming?

2. Briefly define how PHP is installed on windows?

3. Write the syntax for create array using square brackets method.

4. How will you test the existence of a function?

5. Write the syntax for destroying the sessions.

6. Write the HTML and PHP code on a single page.

7. Draw a new image using PHP programming.

8. Write the syntax for create and delete files in PHP.

9. Write the MYSQL data types.

10. How will you connect MYSQL with PHP?

Part B (5 × 5 = 25)

Answer **all** questions, choosing either (a) or (b).

11. (a) Describe the PHP constants in detail.

Or

(b) Describe the Decision Making statements used in PHP.

12. (a) Describe how you will create objects in PHP.

Or

(b) Describe the Built in functions used in PHP.

13. (a) Explain about the passing session IDs in the query string.

Or

(b) How will you re-direct the user on form submission?

14. (a) Explain about reading or appending files in PHP with syntex code.

Or

(b) Explain image creation from user input.

15. (a) Describe data and time functions in MYSQL.

Or

(b) What are the string functions used in MYSQL?

Part C (3 × 10 = 30)

Answer any **three** questions.

16. How will you install apache web server?

17. Explain with syntax about dynamic function calls in PHP.

18. Explain about sessions in an environment with registered users.

19. Describe the popen ( ) functions in detail.

20. Write the syntax for create a table in MYSQL and give the example for select and update command.

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