

Sessional Examination 2025

Computer Science Sem1(COM0101004)

Full Marks: 40

Time: 2 Hours

1. Define the following terms (any five): $2 \times 5 = 10$

- a) Algorithm
- b) Flowchart
- c) Variable
- d) Constant
- e) L-Value
- f) Function
- g) Recursive function
- h) Escape sequence

2. Answer the following questions(any three): $10 \times 3 = 30$

- a) Give brief description of different data types available in C.
- b) Give brief description of different operators available in C.
- c) What are the uses of break and continue statement? Explain with suitable example.
- d) What is a function? What are the advantages of using functions?
- e) Explain the Differences between function call by value and call by reference.
- f) Write a function to find whether a given number is prime or not.
- g) Write a program to arrange elements of an array in ascending order.

♣♣♣♣

Sessional Examination 2025

Computer Science Sem1(COM0101004)

Full Marks: 40

Time: 2 Hours

1. Define the following terms (any five): $2 \times 5 = 10$

- a) Algorithm
- b) Flowchart
- c) Variable
- d) Constant
- e) L-Value
- f) Function
- g) Recursive function
- h) Escape sequence

2. Answer the following questions(any three): $10 \times 3 = 30$

- a) Give brief description of different data types available in C.
- b) Give brief description of different operators available in C.
- c) What are the uses of break and continue statement? Explain with suitable example.
- d) What is a function? What are the advantages of using functions?
- e) Explain the Differences between function call by value and call by reference.
- f) Write a function to find whether a given number is prime or not.
- g) Write a program to arrange elements of an array in ascending order.

♣♣♣♣

B.Sc. Semester III Sessional II Examination,2025
Subject: Computer Science
Data Structures(COM0300204)

Time: 2 Hour

Full Marks:40

1. Answer the following questions as directed: 1x4=4
 - a) Elements of array are stored in contiguous memory locations. (state true or false).
 - b) Value of the postfix expression $7 \ 2 \ 3 \ * \ -$ is _____. (fill in the blank)
 - c) _____ linked list is a finite list and each node has a successor. (fill in the blank)
 - d) In-order traversal of a BST yields an ordered list. (state true or false)
2. Define the following terms: (any four) 5x4=20
 - a) Linked List
 - b) Threaded binary tree
 - c) Asymptotic notation
 - d) Address translation function
 - e) Circular linked list
 - f) Binary search tree
3. Answer any two of the following questions: 8x2=16
 - a) Briefly explain row-major and column-major representation of 2D array.
 - b) Compare array with linked list.
 - c) Convert the expression $A+B*(C-D)/E$ into postfix notation.
 - d) Write non-recursive algorithm for in-order traversal of binary tree.
 - e) Write a program to represent circular Queue or stack.

B.Sc. Semester III Sessional II Examination,2025
Subject: Computer Science
Data Structures(COM0300204)

Time: 2 Hour

Full Marks:40

1. Answer the following questions as directed: 1x4=4
 - a) Elements of array are stored in contiguous memory locations. (state true or false).
 - b) Value of the postfix expression $7 \ 2 \ 3 \ * \ -$ is _____. (fill in the blank)
 - c) _____ linked list is a finite list and each node has a successor. (fill in the blank)
 - d) In-order traversal of a BST yields an ordered list. (state true or false)
2. Define the following terms: (any four) 5x4=20
 - a) Linked List
 - b) Threaded binary tree
 - c) Asymptotic notation
 - d) Address translation function
 - e) Circular linked list
 - f) Binary search tree
3. Answer any two of the following questions: 8x2=16
 - a) Briefly explain row-major and column-major representation of 2D array.
 - b) Compare array with linked list.
 - c) Convert the expression $A+B*(C-D)/E$ into postfix notation.
 - d) Write non-recursive algorithm for in-order traversal of binary tree.
 - e) Write a program to represent circular Queue or stack.

B.Sc. Semester 5 Sessional Examination,2025
Subject: Computer Science
Web Technologies(COM0500504)

Time: 2 Hour

Full Marks:40

1. Answer the following questions as directed: 1x4=4
 - a) ___ tag is used to render an image on a webpage.(fill in the blank)
 - b) Which of the following CSS property is used to make the text bold?
 - i) text-decoration: bold ii) font-weight: bold
 - iii) font-style: bold iv) text-align: bold(choose the correct option)
 - c) What will be the output of the following JavaScript code?

```
int a=0;
for(a;a<5;a++);
console.log(a);
```

 - i) 4 ii) 5
 - iii) 0 iv) error(choose the correct option)
 - d) In PHP, we can assign the same value to multiple variables in one line. (state true or false)
2. Define the following terms(any four): 3x4=12
 - a) HTTPS
 - b) FTP
 - c) URL
 - d) CSS box model
 - e) CSS combinators
 - f) DOM
3. Answer any three of the following questions: 8x3=24
 - a) Give an overview of web browsers and list their functionalities.
 - b) Explain any five text formatting tags of HTML.
 - c) Explain any three CSS selectors.
 - d) Write a PHP script to display current date and time in a web page.
 - e) Create a table with multiple rows and columns.

B.Sc. Semester 5 Sessional Examination,2025
Subject: Computer Science
Web Technologies(COM0500504)

Time: 2 Hour

Full Marks:40

1. Answer the following questions as directed: 1x4=4
 - a) ___ tag is used to render an image on a webpage.(fill in the blank)
 - b) Which of the following CSS property is used to make the text bold?
 - i) text-decoration: bold ii) font-weight: bold
 - iii) font-style: bold iv) text-align: bold(choose the correct option)
 - c) What will be the output of the following JavaScript code?

```
int a=0;
for(a;a<5;a++);
console.log(a);
```

 - i) 4 ii) 5
 - iii) 0 iv) error(choose the correct option)
 - d) In PHP, we can assign the same value to multiple variables in one line. (state true or false)
2. Define the following terms(any four): 3x4=12
 - a) HTTPS
 - b) FTP
 - c) URL
 - d) CSS box model
 - e) CSS combinators
 - f) DOM
3. Answer any three of the following questions: 8x3=24
 - a) Give an overview of web browsers and list their functionalities.
 - b) Explain any five text formatting tags of HTML.
 - c) Explain any three CSS selectors.
 - d) Write a PHP script to display current date and time in a web page.
 - e) Create a table with multiple rows and columns.

B.Sc. IT Semester 1 Sessional Examination,2025

Mathematical Foundation of Information Technology

Time: 2 Hour

Full Marks:40

1. Answer the following questions as directed: $1 \times 4 = 4$
 - a) The Cartesian Product $B \times A$ is equal to the Cartesian product $A \times B$. (state true or false)
 - b) The domain of the function $f(x) = \sqrt{4-x}$ is _____. (fill in the blank)
 - c) A compound proposition that is always true is called a _____. (fill in the blank)
 - d) A predicate with variables can be made a proposition by either assigning a value to the variable or by quantifying the variable. (state true or false).
2. Define the following terms (any three): $4 \times 3 = 12$
 - a) Venn diagram b) Equivalence relation
 - c) closure of relation d) Bipartite graph e) CNF
3. Answer any three of the following questions: $8 \times 3 = 24$
 - a) Suppose that A, B, and C are sets. Prove or disprove that $(A-B)-C = (A-C)-B$.
 - b) Show that $\neg(p \vee q)$ and $\neg p \wedge \neg q$ are logically equivalent.
 - c) How many ways are there for 10 women and six men to stand in a line so that no two men stand next to each other?
 - d) Show that the “greater than or equal” relation ($\geq$) is a partial ordering on the set of integers.
 - e) Let $f : \mathbb{Z} \rightarrow \mathbb{Z}$ be such that $f(x) = x + 1$. Is f invertible, and if it is, what is its inverse?
 - f) Use mathematical induction to prove that $2^n < n!$ for every integer n with $n \geq 4$.



B.Sc. IT Semester 1 Sessional Examination,2025

Mathematical Foundation of Information Technology

Time: 2 Hour

Full Marks:40

1. Answer the following questions as directed: $1 \times 4 = 4$
 - a) The Cartesian Product $B \times A$ is equal to the Cartesian product $A \times B$. (state true or false)
 - b) The domain of the function $f(x) = \sqrt{4-x}$ is _____. (fill in the blank)
 - c) A compound proposition that is always true is called a _____. (fill in the blank)
 - d) A predicate with variables can be made a proposition by either assigning a value to the variable or by quantifying the variable. (state true or false).
2. Define the following terms (any three): $4 \times 3 = 12$
 - a) Venn diagram b) Equivalence relation
 - c) closure of relation d) Bipartite graph e) CNF
3. Answer any three of the following questions: $8 \times 3 = 24$
 - a) Suppose that A, B, and C are sets. Prove or disprove that $(A-B)-C = (A-C)-B$.
 - b) Show that $\neg(p \vee q)$ and $\neg p \wedge \neg q$ are logically equivalent.
 - c) How many ways are there for 10 women and six men to stand in a line so that no two men stand next to each other?
 - d) Show that the “greater than or equal” relation ($\geq$) is a partial ordering on the set of integers.
 - e) Let $f : \mathbb{Z} \rightarrow \mathbb{Z}$ be such that $f(x) = x + 1$. Is f invertible, and if it is, what is its inverse?
 - f) Use mathematical induction to prove that $2^n < n!$ for every integer n with $n \geq 4$.



B.Sc. Semester 5 Sessional Examination,2025

Subject: Computer Science

Python Programming(COM0500304)

Time: 2 Hour

Full Marks:40

1. Answer the following questions as directed: 1x4=4
 - a) Which of the following is an immutable data type in Python?
 - i) list ii) dictionary iii) set iv) tuple
 - b) What is the output of type("Hello") in Python?
 - i) <class 'int'> ii) <class 'str'> iii) <class 'float'> iv) <class 'list'> (choose the correct option)
 - c) Which of the following is the correct way to declare a variable and assign it the value 10 in Python?
 - i) int x = 10; ii) x := 10; iii) x = 10 iv) var x = 10; (choose the correct option)
 - d) Which symbol is primarily used to denote a single-line comment in Python?
 - i) / / ii) /* */ iii) # iv) <!-- -->
2. Define the following terms(any four): 3x4=12
 - a) What is Python?
 - b) What is the def keyword used for in Python
 - c) Explain the significance of indentation in Python.
 - d) What is the difference between Python array and List?
 - e) Differentiate between mutable and immutable data types in Python with an example.
3. Answer any three of the following questions: 8x3=24
 - a) What are the differences between set and list in Python?
 - b) Describe the built-in dictionary data type.
 - c) Describe the exception handling mechanism in Python.
 - d) What is the difference between read(), readline() and readlines() in Python?

B.Sc. Semester 5 Sessional Examination,2025

Subject: Computer Science

Python Programming(COM0500304)

Time: 2 Hour

Full Marks:40

1. Answer the following questions as directed: 1x4=4
 - a) Which of the following is an immutable data type in Python?
 - i) list ii) dictionary iii) set iv) tuple
 - b) What is the output of type("Hello") in Python?
 - i) <class 'int'> ii) <class 'str'> iii) <class 'float'> iv) <class 'list'> (choose the correct option)
 - c) Which of the following is the correct way to declare a variable and assign it the value 10 in Python?
 - i) int x = 10; ii) x := 10; iii) x = 10 iv) var x = 10; (choose the correct option)
 - d) Which symbol is primarily used to denote a single-line comment in Python?
 - i) / / ii) /* */ iii) # iv) <!-- -->
2. Define the following terms(any four): 3x4=12
 - a) What is Python?
 - b) What is the def keyword used for in Python
 - c) Explain the significance of indentation in Python.
 - d) What is the difference between Python array and List?
 - e) Differentiate between mutable and immutable data types in Python with an example.
3. Answer any three of the following questions: 8x3=24
 - a) What are the differences between set and list in Python?
 - b) Describe the built-in dictionary data type.
 - c) Describe the exception handling mechanism in Python.
 - d) What is the difference between read(), readline() and readlines() in Python?

B.Sc. Semester 1 Sessional Examination,2025
Subject: Computer Science(SEC)
Computer Fundamentals and Application Software

Time: 1 Hour

Full Marks:15

1. Answer the following questions as directed: 1x4=4
 - a) Which of the following unit is responsible for converting the data received from the user into a computer understandable format?
 - i) Output Unit ii) Input Unit iii) Memory Unit iv) Arithmetic & Logic Unit
 - b Which of the following are physical devices of a computer?
 - i) Hardware ii) Software iii) System Software iv) Package (choose the correct option)
 - c) What is Microsoft Excel?
 - i) A web browser ii) A word processing program iii) A graphic design tool iv) A spreadsheet application (choose the correct option)
 - d) What is the default file extension for a Word document?
 - i) .pdf ii) .docx iii) .xls iv) .txt
2. Define the following terms(any three): 2x3=6
 - a) How do you add values in Excel?
 - b) What is the Undo command
 - c) What is a cell in Excel?.
 - d) What is the SUM function?
 - e) What is indentation?
3. Answer any one of the following questions: 5x1=5
 - a) How do you create a table?
 - b) What is Mail Merge in MS Word?.
 - c) What is the purpose of the "Format Painter" tool?
 - d) What is absolute addressing and relative addressing?

B.Sc. Semester 1 Sessional Examination,2025
Subject: Computer Science(SEC)
Computer Fundamentals and Application Software

Time: 1 Hour

Full Marks:15

1. Answer the following questions as directed: 1x4=4
 - a) Which of the following unit is responsible for converting the data received from the user into a computer understandable format?
 - i) Output Unit ii) Input Unit iii) Memory Unit iv) Arithmetic & Logic Unit
 - b Which of the following are physical devices of a computer?
 - i) Hardware ii) Software iii) System Software iv) Package (choose the correct option)
 - c) What is Microsoft Excel?
 - i) A web browser ii) A word processing program iii) A graphic design tool iv) A spreadsheet application (choose the correct option)
 - d) What is the default file extension for a Word document?
 - i) .pdf ii) .docx iii) .xls iv) .txt
2. Define the following terms(any three): 2x3=6
 - a) How do you add values in Excel?
 - b) What is the Undo command
 - c) What is a cell in Excel?.
 - d) What is the SUM function?
 - e) What is indentation?
3. Answer any one of the following questions: 5x1=5
 - a) How do you create a table?
 - b) What is Mail Merge in MS Word?.
 - c) What is the purpose of the "Format Painter" tool?
 - d) What is absolute addressing and relative addressing?

B.Sc. Semester 3 Sessional Examination,2025
Subject: Computer Science(SEC)
DBMS using MS-ACCESS

Time: 1 Hour

Full Marks:15

1. Answer the following questions as directed: 1x3=3
 - a) What is a database?
 - i) Organized collection of information that cannot be accessed, updated, and managed
 - ii) Collection of data or information without organizing
 - iii) Organized collection of data or information that can be accessed, updated, and managed
 - iv) Organized collection of data that cannot be updated. (choose the correct option)
 - b) What does an RDBMS consist of?
 - i) Collection of Records
 - ii) Collection of Keys
 - iii) Collection of Tables
 - iv) Collection of Fields (choose the correct option)
 - c) In MS Access, OLE objects Data type can store
 - i)Microsoft Excel Spreadsheets
 - ii) Microsoft Word documents
 - iii) Sounds
 - iv) All of the above (choose the correct option)
2. Define the following terms: 2x4=8
 - a) Database
 - b) DBMS
 - c) Primary key
 - d) Foreign key
3. Give an overview of any four data types in Access desktop databases, 4

OR

Describe different types of relationships in Access.

EEEEEEEEEEEEEE

B.Sc. Semester 3 Sessional Examination,2025
Subject: Computer Science(SEC)
DBMS using MS-ACCESS

Time: 1 Hour

Full Marks:15

1. Answer the following questions as directed: 1x3=3
 - a) What is a database?
 - i) Organized collection of information that cannot be accessed, updated, and managed
 - ii) Collection of data or information without organizing
 - iii) Organized collection of data or information that can be accessed, updated, and managed
 - iv) Organized collection of data that cannot be updated. (choose the correct option)
 - b) What does an RDBMS consist of?
 - i) Collection of Records
 - ii) Collection of Keys
 - iii) Collection of Tables
 - iv) Collection of Fields (choose the correct option)
 - c) In MS Access, OLE objects Data type can store
 - i)Microsoft Excel Spreadsheets
 - ii) Microsoft Word documents
 - iii) Sounds
 - iv) All of the above (choose the correct option)
2. Define the following terms: 2x4=8
 - a) Database
 - b) DBMS
 - c) Primary key
 - d) Foreign key
3. Give an overview of any four data types in Access desktop databases, 4

OR

Describe different types of relationships in Access.

EEEEEEEEEEEEEE