

Printing Pages: 2

Paper Code: BCA-302

C

(SVSU:2025-26/R)

Enrollment No.

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BCA

II YEAR/ III SEMESTER EXAMINATION

COMPUTER NETWORK

Subject Code- BCA-302

[Time : 3:00 Hours]

[Max. Marks : 75]

I. Objective Question: Answer All Question

[1x15= 15]

1. Which layer of the OSI model provides logical addressing?

- a) Physical b) Data Link c) Network d) Transport

2. The main function of a switch is to:

- a) Forward packets based on IP address
b) Forward frames based on MAC address
c) Connect networks
d) Monitor traffic

3. In a ring topology, data travels:

- a) In one direction b) In both directions
c) Randomly d) Only through hub

4. TCP guarantees:

- a) Reliable, ordered delivery of data b) Only fast delivery
c) Connectionless service d) No error checking

5. Which device regenerates signals to extend network distance?

- a) Hub b) Repeater c) Switch d) Router

6. Flow control in TCP is achieved by:

- a) Windowing b) Parity check c) Segmentation d) Framing

7. IP addressing is a part of which protocol suite?

- a) OSI b) TCP/IP c) Ethernet d) IEEE

8. Cloud computing mainly provides:

- a) Local file storage b) On-demand resource availability
c) Only email services d) Only databases

9. A bridge operates primarily at which layer?

- a) Physical b) Data Link c) Network d) Transport

10. Error detection using CRC is done at:
a) Physical b) Data Link c) Transport d) Application
11. IoT devices can communicate using:
a) RFID b) ZigBee c) Wi-Fi d) All of the above
12. Which of the following is true for peer-to-peer networks?
a) Central server is required b) Each node can act as client or server
c) Only one client exists d) Only one server exists
13. Ethernet standard IEEE 802.3 defines:
a) Wi-Fi protocols b) LAN protocols
c) WAN protocols d) Cloud services
14. Segmentation in networking is performed at which layer?
a) Transport b) Network c) Data Link d) Physical
15. Network monitoring tools help in:
a) Detecting faults b) Tracking performance
c) Monitoring security d) All of the above

II. Long Question: Answer Any Three out of five [10x3=30]

1. Describe the OSI model and explain the functions of each layer.
2. Explain various network devices including hubs, switches, routers, and bridges.
3. Discuss error detection, framing, and flow control mechanisms.
4. Explain cloud computing, virtualization, and their role in modern networking.
5. Describe IoT, its communication methods, and real-world applications.

III. Short Question: Answer any six out of seven [6x5=30]

1. Define network topologies and explain their advantages.
2. Differentiate between client-server and peer-to-peer architectures.
3. Write short notes on IP Address.
4. Explain about TCP/IP.
5. List common network monitoring tools and their functions.
6. What is a router? Explain its function in networking.
7. Write a short note on virtualization in networking.

Printing Pages :2

Paper Code: BCA-302

C (SVSU:2023-24/R)

Enrollment No.														
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BCA

III SEMESTER/ II YEAR EXAMINATION

Subject Code- BCA-302

OPERATING SYSTEM

[Time : 3:00 Hours]

[Max. Marks : 70]

Note : Attempt all the questions as per given instructions.

I. Multiple Choice Questions(MCQ) [1x15= 15]

1. Which of the following is the extension of Notepad?
 - a. .txt
 - b. .xls
 - c. .ppt
 - d. .bmp
2. What is the full name of FAT?
 - a. File attribute table
 - b. File allocation table
 - c. Font attribute table
 - d. Format allocation table
3. When does page fault occur?
 - a. The page is present in memory.
 - b. The deadlock occurs.
 - c. The page does not present in memory.
 - d. The buffering occurs
4. Which of the following is a single-user operating system?
 - a. Windows
 - b. MAC
 - c. Ms-Dos
 - d. None of these
5. Which of the following is not application software?
 - a. Windows 7
 - b. WordPad
 - c. Photoshop
 - d. MS-excel
6. Which of the following is a condition that causes deadlock?
 - a. Mutual exclusion
 - b. Hold and wait
 - c. Circular wait
 - d. No preemption
 - e. All of these
7. Where are placed the list of processes that are prepared to be executed and waiting?
 - a. Job queue
 - b. Ready queue
 - c. Execution queue
 - d. Process queue
8. What type of scheduling is round-robin scheduling?
 - a. Linear data scheduling
 - b. Non-linear data scheduling
 - c. Preemptive scheduling
 - d. Non-Preemptive scheduling
9. Which of the following options is correct about the windows operating system?
 - a. Windows is a CUI operating system.
 - b. Windows is based on CUI.
 - c. Windows is a GUI operating system.
 - d. None of the these

10. The operating system work between
 - a. User and Computer
 - b. Network and User
 - c. One user to another user
 - d. All of the these
11. Which of the following statement is correct about fragmentation?
 - a. It is software that connects the OS.
 - b. It is part of the software.
 - c. Loss the memory
 - d. All of the these
12. The PCB is identified by _____.
 - a. Real-Number
 - b. Binary Number
 - c. Store block
 - d. Integer Process ID
13. The number of processes completed per unit time is known as
 - a. Output
 - b. Throughput
 - c. Efficiency
 - d. Capacity
14. Run time mapping from virtual to physical address is done by
 - a. Memory management unit
 - b. CPU
 - c. PCI
 - d. None of the mentioned
15. A Microsoft Windows is?
 - a. Operating system
 - b. Graphics program
 - c. Word Processing
 - d. Database program

II. Long Question: Answer Any Three [10x3=30]

1. When does a page fault occur? Explain various page replacement strategies/algorithms.
2. What is a Process? What are the different states of a Process? Explain each of them in detail.
3. Consider page reference string 1, 3, 0, 3, 5, 6, 3 with 3 page frames. Find the number of page faults using FIFO page replacement algorithm.
4. What is deadlock? Explain deadlock Avoidance in detail.

III. Short Question: Answer Any Five [5x5=25]

1. What are Pages and Frames?
2. What are the advantages of multiprogramming?
3. What is cooperating process?
4. What is process scheduling?
5. What is compaction?
6. What is difference between base address and limit address?
7. What do you mean by paging?
8. List the various File Attributes and explain.

Printing Pages :2

Paper Code: BCA-302

C (SVSU:2023-24/R)

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BCA

III SEMESTER/ II YEAR EXAMINATION

Subject Code- BCA-302

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[Time : 3:00 Hours]

[Max. Marks : 70]

Note : Attempt all the questions as per given instructions.

I. Multiple Choice Questions(MCQ)

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 - d. Integer Process ID
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 - a. Output
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 - c. Efficiency
 - d. Capacity
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 - a. Memory management unit
 - b. CPU
 - c. PCI
 - d. None of the mentioned
15. A Microsoft Windows is?
 - a. Operating system
 - b. Graphics program
 - c. Word Processing
 - d. Database program

II. Long Question: Answer Any Three

[10x3=30]

1. When does a page fault occur? Explain various page replacement strategies/algorithms.
2. What is a Process? What are the different states of a Process? Explain each of them in detail.
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III. Short Question: Answer Any Five

[5x5=25]

1. What are Pages and Frames?
2. What are the advantages of multiprogramming?
3. What is cooperating process?
4. What is process scheduling?
5. What is compaction?
6. What is difference between base address and limit address?
7. What do you mean by paging?
8. List the various File Attributes and explain.

Printing Pages: 2

Paper Code: BCA-301/303

A

(SVSU:2025-26/R)

Enrollment No.

BCA

III SEMESTER/ II YEAR EXAMINATION

Subject Code- BCA-301/303

DATA STRUCTURE USING C

[Time : 3:00 Hours]

[Max. Marks : 75]

Note : 1. Attempt all the questions as per given instructions.

I. Multiple Choice Questions(MCQ)

[1x15= 15]

1. Which of the following is a linear data structure?
A) Tree B) Graph C) Stack D) Binary Tree
2. The time complexity of binary search is —
A) $O(n)$ B) $O(\log n)$ C) $O(n^2)$ D) $O(1)$
3. Which of the following uses LIFO principle?
A) Queue B) Stack C) Array D) Linked List
4. Which operation adds an element in a stack?
A) Pop B) Push C) Insert D) Enqueue
5. In a queue, insertion happens at the —
A) Front B) Rear C) Both D) Middle
6. Which notation is used in postfix expression?
A) Operator before operand B) Operator after operand
C) Operator in middle D) None
7. What is the time complexity of linear search?
A) $O(n)$ B) $O(\log n)$ C) $O(n^2)$ D) $O(1)$
8. Which traversal method visits the root first, then left, then right?
A) Preorder B) Inorder C) Postorder D) Level order
9. Which of the following is a non-linear data structure?
A) Stack B) Queue C) Tree D) Array
10. Which sorting algorithm is based on divide and conquer?
A) Selection Sort B) Quick Sort
C) Bubble Sort D) Insertion Sort
11. What does BST stand for?
A) Binary Search Tree B) Binary Sorting Table
C) Basic Search Type D) Binary Simple Tree
12. Which function is used to dynamically allocate memory in C?
A) malloc() B) printf() C) scanf() D) calloc()

13. Which data structure is used in recursion?
A) Stack B) Queue C) Array D) Graph
14. Which search technique works only for sorted data?
A) Linear Search B) Binary Search
C) Hashing D) Sequential Search
15. What is the full form of FIFO?
A) First In First Out B) First In Final Out
C) Fast In Fast Out D) Few In Few Out

II. Long Question: Answer Any Three [10x3=30]

1. Explain the concept of stack with examples.
2. What are array? Explain single and multidimensional arrays with syntax and suitable example.
3. Define File Handling. Write a program to perform any two operations in file handling.
4. Write a program to create and use the user-defined function in C.

III. Short Question: Answer Any Five [6x5=30]

1. Define data structure and algorithm.
2. What is recursion? Give a simple example.
3. Differentiate between stack and queue.
4. Write a program to perform swapping two value in C Programming.
5. Define liner data structure and non-liner data structure.
6. Write an algorithm to check the no is even or odd?
7. Explain any two sorting algorithms.

Printing Pages: 2

Paper Code: VOC - 3GD

B

(SVSU:2025-26/R)

Enrollment No.

BCA

II YEAR EXAMINATION

Graphics Designing

Subject Code- VOC - 3GD

[Time : 3:00 Hours]

[Max. Marks : 75]

I. Objective Question: Answer All Question

[1x15= 15]

1. Which software is used for desktop publishing?

- a) Illustrator b) CorelDraw c) PageMaker d) Excel

2. What is Office on Demand?

- a) A physical copy of MS Office
b) A cloud service to stream Office apps temporarily
c) A mobile version of Office
d) None of the above

3. Which of these formats is not typically used for vector graphics?

- a) SVG b) EPS c) PNG d) AI

4. Which principle is NOT a principle of design?

- a) Contrast b) Repetition c) Clarity d) Balance

5. Which software is best for animation development?

- a) MS Paint b) Adobe Flash c) InDesign d) MS Word

6. A Microsoft account is required to:

- a) Use Adobe apps b) Use OneDrive and Office Web Apps
c) Use Google Drive d) Install CorelDraw

7. Which file format is best for e-book publishing?

- a) .docx b) .pdf c) .psd d) .ai

8. Which one is NOT a multimedia element?

- a) Sound b) Text c) Animation d) Spreadsheet

9. What does InDesign specialize in?

- a) Video editing b) Page layout and publishing
c) Animation d) Web development

10. Which component is essential in sound recording?

- a) Microphone b) Monitor c) Stylus d) Keyboard

11. What is the full form of PDF?

- a) Personal Document Format b) Printable Data File
c) Portable Document Format d) Programmed Data File

12. In digital design, what is a "portfolio"?

- a) A collection of resumes b) A database of fonts
- c) A presentation of work samples d) A list of tools

13. Which of the following is a web design language?

- a) HTML b) Flash c) CorelDraw d) Excel

14. What is a key feature of Photoshop?

- a) 3D modelling b) Vector manipulation
- c) Photo editing d) Audio mixing

15. What is the use of DHTML?

- a) To edit documents b) To create dynamic websites
- c) To record sound d) To draw illustrations

II. Long Question: Answer Any Three out of five

[10x3=30]

1. Describe the steps to build a digital portfolio.
2. Discuss the role and application of Adobe InDesign in publishing.
3. Explain HTML and DHTML with examples.
4. Illustrate the use of CorelDraw in creating vector artwork.
5. Describe the process of career planning in the field of animation or design.

III. Short Question: Answer any five out of seven

[6x5=30]

1. Define SkyDrive Pro and its usage.
2. What are the basic principles of management in team projects?
3. Differentiate between Adobe Photoshop and Illustrator.
4. Explain the term "Multimedia Authoring".
5. What is the significance of sound principles in multimedia?
6. Describe the role of visual communication in graphic design.
7. List any three design tools and their primary use.

Printing Pages: 2

Paper Code: BCA-302

A

(SVSU:2025-26/R)

Enrollment No.

BCA

II YEAR/ III SEMESTER EXAMINATION

COMPUTER NETWORK

Subject Code- BCA-302

[Time : 3:00 Hours]

[Max. Marks : 75]

I. Objective Question: Answer All Question [1x15= 15]

1. Which of the following is a component of a data communication system?
a) Sender b) Receiver c) Transmission medium d) All of the above
2. Which topology has all nodes connected to a single central hub?
a) Bus b) Star c) Ring d) Mesh
3. A peer-to-peer network is characterized by:
a) Centralized server b) Equal sharing of resources among nodes
c) Hierarchical structure d) Only client machines
4. Which layer of the OSI model is responsible for end-to-end communication?
a) Physical b) Transport c) Data Link d) Network
5. TCP/IP protocol suite operates mainly in which layers?
a) Application, Transport, Internet, Network Access b) Physical only
c) Session only d) Presentation only
6. Framing is performed at which layer of the OSI model?
a) Physical b) Data Link c) Network d) Transport
7. Which device connects multiple networks and routes data packets?
a) Switch b) Router c) Hub d) Repeater
8. Error detection using parity check is done at:
a) Physical layer b) Data Link layer c) Network layer d) Transport layer
9. MAC address uniquely identifies:
a) Network interface card b) Router c) Switch d) Server
10. Ethernet standards are defined by:
a) ISO b) IEEE c) ITU d) IETF

11. Flow control ensures:

- a) No data loss due to congestion
- b) Faster transmission
- c) Security
- d) Routing

12. Network monitoring tools are used for:

- a) Performance tracking
- b) Fault detection
- c) Security monitoring
- d) All of the above

13. IoT stands for:

- a) Internet of Technology
- b) Internet of Things
- c) Interface of Things
- d) Internal of Transmission

14. Cloud computing provides:

- a) On-demand resource access
- b) Fixed hardware requirement
- c) Only storage services
- d) Only networking

15. Bridges are used to:

- a) Connect two LAN segments
- b) Amplify signals
- c) Switch between VLANs
- d) Connect WAN

II. Long Question: Answer Any Three out of five [10x3=30]

1. Explain the components of a data communication system with examples.
2. Describe the OSI model layers and their functions in detail.
3. Explain TCP/IP protocol suite and its advantages.
4. Discuss framing, error detection, and flow control in the Data Link layer.
5. Describe network devices such as switches, routers, and bridges with their functions.

III. Short Question: Answer any six out of seven [6x5=30]

1. Define different types of networks (LAN, WAN, MAN).
2. Explain star and bus topologies with diagrams.
3. What is MAC addressing and why is it important?
4. List some common network monitoring and management tools.
5. Write a short note on Cloud computing and virtualization.
6. What is the Internet of Things (IoT)? Give examples.
7. Define peer-to-peer and client-server network architectures.

Printing Pages: 2

Paper Code: VOC - 3GD

C

(SVSU:2025-26/R)

Enrollment No.

BCA

II YEAR EXAMINATION

Graphics Designing

Subject Code- VOC - 3GD

[Time : 3:00 Hours]

[Max. Marks : 75]

1. Objective Question: Answer All Question [1x15= 15]

1. Which of the following is used to create vector graphics?
 - a) Photoshop b) Illustrator c) MS Paint d) InDesign
2. What is the function of Adobe Flash in design?
 - a) Sound editing b) Video streaming
 - c) Animation and multimedia d) Vector drawing only
3. HTML stands for:
 - a) High Text Machine Language b) Hyper Text Markup Language
 - c) Hyper Tool Markup Language d) None of the above
4. Which principle is NOT a principle of design?
 - a) Contrast b) Repetition c) Clarity d) Balance
5. Which software is best for animation development?
 - a) MS Paint b) Adobe Flash c) InDesign d) MS Word
6. A Microsoft account is required to:
 - a) Use Adobe apps b) Use OneDrive and Office Web Apps
 - c) Use Google Drive d) Install CorelDraw
7. Which file format is best for e-book publishing?
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9. What does InDesign specialize in?
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10. Which component is essential in sound recording?
 - a) Microphone b) Monitor c) Stylus d) Keyboard
11. What is the full form of PDF?
 - a) Personal Document Format b) Printable Data File
 - c) Portable Document Format d) Programmed Data File

12. In digital design, what is a "portfolio"?
- a) A collection of resumes b) A database of fonts
 - c) A presentation of work samples d) A list of tools
13. Which of the following is a web design language?
- a) HTML b) Flash c) Corel Draw d) Excel
14. What file format is ideal for printing designs?
- a) JPEG b) PNG c) PDF d) HTML
15. Which of these is a principle of design?
- a) Blending b) Alignment c) Looping d) Formatting

II. Long Question: Answer Any Three out of five

[10x3=30]

1. Compare and contrast CorelDraw and Adobe Illustrator with examples.
2. Describe the multimedia authoring process and its importance in animation.
3. Explain HTML and DHTML with examples.
4. Illustrate the use of CorelDraw in creating vector artwork.
5. Discuss the importance of visual communication in digital design.

III. Short Question: Answer any five out of seven

[6x5=30]

1. What is the role of typography in graphic design?
2. Define HTML and explain its use in web design.
3. Differentiate between Adobe Photoshop and Illustrator.
4. Explain the term "Multimedia Authoring".
5. What is the significance of sound principles in multimedia?
6. What is the importance of color theory in design?
7. Mention any three key features of Adobe Illustrator.

Printing Pages :2

Paper Code: BCA-301

B (SVSU:2024-25/R)

Enrollment No.														
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COURSE NAME: BCA

II - YEAR EXAMINATION

Subject Name: Discrete Maths,

Subject Code: BCA -301

[Time : 3:00 Hours]

[Max. Marks : 70]

III. Objectives Question: Answer All Question [15×1=15]

- The truth values are
(a) 0 (b) 1, 2 (c) 0 and 1 (d) 2.
- The Conditional is represented by :
(a) $\vee$ (b) $\wedge$ (c) $\rightarrow$ (d) $\leftrightarrow$.
- Null law is
(a) $1.A=A$ (b) $1+A=1$ (c) $AB=BA$ (d) none of these
- Idempotent law _____
(a) $AA' = 0$ (b) $1.A=A$
(c) $1+A=1$ (d) $A.A=A$
- In Boolean Algebra , a.(a + b. (a + b)) is equal to :
(a) a (b) c (c) a + b (d) c.b
- Complement law is _____
(a) $A A' = 0$ (b) $AA = A$
(c) $1+A=1$ (d) $AB=BA$
- The maximum number of edges in a simple graph with n vertices is :
(a) $\frac{n(n-1)}{2}$ (b) $\frac{n(n+1)}{2}$
(c) $\frac{(n-1)}{2}$ (d) $\frac{n(n-1)}{3}$
- The minimum number of edges in a connected graph with n vertices is:
(a) n- 1 (b) n + 1
(c) n (d) none of these
- Any connected graph with n vertices and (n - 1) edges is a :
(a) rooted tree (b) tree
(c) binary tree (d) none of these
- AND Gate is denoted by
(a) $\pm$ (b) $\div$ (c) $\cdot$ (d) $\forall$

11. ON- Switch denoted by
(a) 0 (b) 1 (c) 2 (d) 3
12. The Type-2 grammar is often called... ..grammar.
(a) context sensitive (b) context free
(c) regular (d) none of these.
13. The maximum number of states of a DFA converted from an NFA with n states is:
(a) n (b) 2^n (c) n^2 (d) none of these
14. Off- Switch denoted by
(a) 0 (b) 1 (c) 2 (d) 3
15. Complement law is _____
(a) $A A' = 0$ (b) $AA = A$
(c) $1 + A = 1$ (d) $AB = BA$

I Long Question : Answer Any Three [10×3=30]

1. Show that by using truth tables:
(i) $p \rightarrow (q \rightarrow p) \equiv \sim p \rightarrow (p \rightarrow q)$
(ii) $\sim p \rightarrow (q \rightarrow r) \equiv q \rightarrow (p \vee r)$.
2. Write the negation of the following statement;
(i) If it raining then the game is cancelled
(ii) If he studies .he will pass the examination
3. Write the Laws of Boolean Algebra 3
4. Draw the circuit diagram of. $(A.B) + (B.C)$
5. Simplify Boolean Expression. $AB + A(B+C) + B(B+C)$.

II. Short Question: Answer any Five [5×5=25]

1. Prove that by truth table: $\sim(P \vee Q) \equiv \sim P \wedge \sim Q$.
2. Explain tautology and contradiction with examples.
3. Draw the circuit diagram of $(A+B+C).(A' + B' + B).(A+B+D')$
4. Define Eulerian graph with an example.
5. Define Bipartite graph with an example.
6. Define binary tree with an example.
7. Define Finite State Automata.
8. Draw DFA of $L_1(aba)$ and $L_2(ab^*)$
9. Draw NFA $L(1 + 0)^*00$
10. Define Deterministic Finite Automata.

Printing Pages: 2

Paper Code: BCA-304S-A C (SVSU:2025-26/C)

EnrollmentNo.											
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COURSE NAME: BCA
II YEAR/III ODD SEMESTER EXAMINATION
Subject Name: COMPUTER HARDWARE TECHNOLOGY & INSTALLATION
Subject Code: BCA-304S-A

[Time: 3:00 Hours]

[Max. Marks: 70]

Section A: Objectives Question: Answer All Questions. [1x15=15]

1. **UPS stands for:**
 - a) Universal Power System
 - b) Uninterruptible Power Supply
 - c) Unified Power Source
 - d) Uninterrupted Power Switch
2. **EMI stands for:**
 - a) Electric Machine Interface
 - b) Electromagnetic Interference
 - c) Electrical Magnetic Input
 - d) Electromechanical Integration
3. **The power of a PSU is measured in:**
 - a) Volts b) Ohms c) Watts d) Amperes
4. **Which of the following is NOT an input device?**
 - a) Keyboard b) Mouse
 - c) Monitor d) Scanner
5. **The physical components of a computer are called:**
 - a) Software b) Firmware
 - c) Hardware d) Shareware
6. **Which component performs calculations and logical operations?**
 - a) RAM b) CPU c) ROM d) Hard Disk
7. **The main circuit board of a computer is called:**
 - a) Processor b) Motherboard
 - c) Chipset d) Interface Card
8. **Which is an example of AC power?**
 - a) Battery b) USB
 - c) Wall socket d) Motherboard power
9. **What protects computers from voltage spikes?**
 - a) Surge protector b) Modem
 - c) Router d) Adapter

10. BIOS stands for:
 - a) Basic Input Output System
 - b) Binary Input Output System
 - c) Basic Integrated Output Software
 - d) Binary Internal Operating System
11. An operating system is:
 - a) Application software
 - b) System software
 - c) Utility software
 - d) Malware
12. The first step in the booting process is:
 - a) BIOS checks hardware
 - b) OS loads
 - c) User logs in
 - d) Desktop appears
13. Which of the following is NOT a type of OS?
 - a) Batch
 - b) Time-sharing
 - c) Compiler
 - d) Real-time
14. Windows updates are important because they:
 - a) Make the system slower
 - b) Add security patches and fix bugs
 - c) Delete user files
 - d) Remove drivers
15. The chipset is responsible for:
 - a) Running software
 - b) Managing data flow between components
 - c) Displaying graphics
 - d) Formatting the hard drive

Section B: Long Questions: Attempt any three [10×3=30]

- a. Define the term file and explain types of operation on file.
- b. Discuss about electromagnetic interference (EMI).
- c. What is power supply? Explain functions of power supply unit.
- d. What is computer? Explain characteristics of computer.
- e. Describe the importance of surge protection and battery backup in computer systems.

Section C : Short Questions: Attempt any five [5×5=25]

- a. Differentiate between kernel and shell.
- b. Write 10 general shortcut keystroke in windows.
- c. What is fault? Explain different types of fault.
- d. Define computer. Explain components of computer.
- e. Differentiate between cache memory and flash memory.
- f. Define buses and port in computer system.
- g. What is the difference between AC and DC current?

Printing Pages: 2

Paper Code: BCA-301/303

B

(SVSU:2025-26/R)

Enrollment No.

BCA

III SEMESTER/ II YEAR EXAMINATION

Subject Code- BCA-301/303

DATA STRUCTURE USING C

[Time : 3:00 Hours]

[Max. Marks : 75]

Note : 1. Attempt all the questions as per given instructions.

I. Multiple Choice Questions (MCQ)

[1x15= 15]

1. Which of the following is not a primitive data structure?
A) Array B) Stack C) Integer D) Float
2. Which of the following is a dynamic data structure?
A) Array B) Linked List C) Stack D) Queue
3. Which operation removes an element from a queue?
A) Pop B) Dequeue C) Push D) Insert
4. The address of the first element in an array is called —
A) Header B) Base address C) Index D) Pointer
5. Which searching algorithm is faster for sorted data?
A) Linear search B) Binary search
C) Hashing D) None
6. Which of the following represents hierarchical relationship?
A) Stack B) Queue C) Tree D) Array
7. Which data structure uses parent-child relationship?
A) Graph B) Tree C) Stack D) Queue
8. What is the time complexity of Bubble Sort?
A) $O(n)$ B) $O(n^2)$ C) $O(\log n)$ D) $O(n \log n)$
9. Which traversal visits left subtree, root, then right subtree?
A) Preorder B) Inorder C) Postorder D) None
10. What does NULL pointer mean?
A) Points to zero B) Points to nothing
C) Points to memory D) None
11. What is the purpose of a linked list?
A) Dynamic memory allocation B) Fixed memory
C) Sorting D) Searching
12. In linked list, the last node points to —
A) Null B) Head C) Random node D) None

13. Which sorting algorithm repeatedly swaps adjacent elements?
A) Bubble Sort B) Quick Sort
C) Merge Sort D) Heap Sort
14. Which traversal is depth-first?
A) Inorder B) Preorder C) Postorder D) All of these
15. Which data structure helps in implementing recursion?
A) Stack B) Queue C) Array D) Graph

II. Long Question: Answer Any Three **[10x3=30]**

1. Explain different types of linked lists with diagrams.
2. Describe various sorting methods with examples.
3. What are array? Explain single and multidimensional arrays with syntax and suitable example.
4. write a program perform the call by reference using pointer.

III. Short Question: Answer Any Five **[6x5=30]**

1. What are the advantages of linked lists?
2. Define stack operations.
3. what is loop? Differentiate while loop and do while loop with suitable example.
4. Write short notes on B-trees.
5. What is a Queue? How can insert and delete an element in queue.
6. Define switch case with syntax and suitable example.
7. Explain recursion in data structure.