

**TEACHING AND EXAMINATION SCHEME FOR**  
**Vocational Computer Applications III Year**  
WEF 2022 – 23

<b>Paper Name (Theory)</b>	<b>Lec.</b>	<b>Exam Hours</b>	<b>Marks of B. Sc.</b>	
VCA-05 Data Structures	3	3	75	27
VCA-06 Cyber Security	3	3	75	27
<b>Paper Name (Practicals)</b>				
VCA-LAB-03Data Structures	3	3	75	27

**Note:**

The question paper for Vocational Computer Applications (B. Sc.) will be divided into 3 parts

**Part A:**

1. 10 Question of 1 mark each – 10 marks
2. Answer should not exceed more than 20 words
3. All questions are compulsory

**Part B:**

1. 5 Questions of 4 marks each – 20 marks
2. Answer should not exceed more than 50 words
3. All questions are compulsory

**Part C:**

1. 3 Questions of 15 marks each – 45 marks. There will be an internal choice in each question.
2. Answer should not exceed 400 words
3. All questions are compulsory.

Practical exam to be conducted by one internal and one external examiner.  
Duration of Practical exam is 3 hours.

*Duration: 3 hours*

*Max marks:*

*B. Sc. – 75*

### VCA-05 Data Structures

Searching:(Linear and Binary), Concept of sorting, Sorting algorithms (Bubble Sort, quick sort, Selection Sort). Recursion: Factorial, Fibonacci, Tower of Hanoi.

Linked Lists: Introduction to linked list and double linked list, Representation of linked lists in Memory, Traversing a linked list, Searching linked list, Insertion and deletion into linked list.

Stacks and Queues: Primitives of stacks, Implementation of stacks using Array & Link List Introduction to queues, properties of queues

Trees: Definition & Basic concepts, Introduction to Binary Tree, Traversing Binary Trees (Pre order, Post order and In-order), Concept of Binary search tree.

Graph: Introduction to graphs, types of graphs, operation of Graph: adjacency Matrix, Graph Traversal: Breadth first search, Depth first search.

*Duration: 3 hours*

*Max marks:*

*B. Sc. – 75*

### VCA-06 Cyber Security

Information security concepts, Overview: Background and current scenario, types of attacks, goals for security, E-commerce security, Computer forensics, steganography

Security threats and vulnerabilities, overview of security threats, weak/strong passwords, insecure network connections, malicious code, programming bugs, cybercrime and cyber terrorism, information warfare and surveillance, virus, Trojan, worms, botnet, ransomware, shells, backdoors

Security management practices, overview of security management, information classification process, security policy, risk management, security procedures and guidelines, business continuity and disaster recovery, ethics and best practices

Security laws and standards, security assurance, security laws, intellectual property rights, international standards, security audit

Access control and intrusion detection, overview of identification and authorization, overview of intrusion detection systems, intrusion detection systems and intrusion prevention systems