# TEACHING AND EXAMINATION SCHEME FOR
## Vocational Computer Applications III Year

| Paper Name (Theory) | Lec. | Exam Hours | Marks of B.A./B.Com | |
|---|---|---|---|---|
| VCA-05 Data Structures | 3 | 3 | 75 | 27 |
| VCA-06 Cyber Security | 3 | 3 | 75 | 27 |
| **Paper Name (Practicals)** | | | | |
| VCA-LAB-03 Data Structures | 3 | 3 | 75 | 27 |

**Note:**
The question paper for Vocational Computer Applications (B.A/B.Com) 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 2 marks each – 10 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.

## VCA-05 Data Structures

Definitions of Data Structure and Algorithm – Time and Space complexity-Algorithm notations.

Merge sort, quick sort, dynamic programming
Control structures- Variables – Data types- Arrays- String processing – Sorting and Searching- Insertion- Selection- Binary Search- Linear Search
Binary tree- Representation – Traversing - Binary Search tree- Insertion deletion into a binary search tree

Graph- Representation of Graph- Shortest path – Operation on Graphs- Traversing a Graph

## 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

Server management and Firewalls, user management, overview of Firewalls, type of Firewalls

Wireless networks and security, components of wireless networks, security issues in wireless