# B.Sc. (Information Technology)

## Batch from Year 2022 to Year 2025

### Semester–V

**Pattern of Question Paper -** Eight questions of equal marks (Specified in the syllabus), two in each of the four Sections (A-D). Questions may be subdivided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each Section. The fifth question may be attempted from any Section.

### Paper – I : COMPUTER NETWORKS

### Time: 3 Hrs. M. Marks : 100

| Month wise Division | Syllabus Unitization |
|---|---|
| **August** | **SECTION–A** <br> Basic concepts of Computer Networks, Client Server Network topologies. OSI Reference Model, TCP/IP Model Comparison and Critiques, Concepts of Routers, bridges, Repeaters, Gateways. <br> **SECTION–B** <br> Transmission Media: – Twisted Pair, Co–axial Cable, Baseband, Broadband, Fibre optics, Satellite, Wireless Transmission, Telephone System |
| **September** | **SECTION–B** <br> Data Transmission: – Analog & Digital Transmission, Modem, Codec, Pulse Code Modulation Multiplexing, Circuit Switching, Packet Switching, message Switching, Hybrid Switching. <br> **SECTION–D** <br> Presentation Layer, Design Issues, Application Layer, Concept of E-mail and Remote Login Internetworking, Network Security. |
| **October-November** | **SECTION–C** The Data link Layer: Design Issues, Error Detection and Correction, Data Link Sliding Window Protocols. Network Layer: Design Issues, Congestion Control and Routing algorithms |

**Prescribed Book**

**Book Name** – Computer Networks

**Author –** Charanjeet Singh

**Publisher –** Kalyani  Publications

## Paper – II : OPERATING SYSTEM

## Time: 3 Hrs. Max. Marks: 100

| Month wise Division | Syllabus Unitization |
|---|---|
| **August** | **SECTION–A**<br>**Introduction**: Definition, evolution, need, early system, function, buffering spooling, single user, multiuser, multiprogramming, multiprocessing, multitasking, multithreading, batch processing, real time, time systems, time sharing systems, security, protection. |
| **September** | **Processor Management / CPU Scheduling:** CPU – I/O Basic Cycle, process state, process control block, Scheduling, Queue, Schedulers, Scheduling Algorithms, Performance criteria, FCFS, SJF, Priority, SRTF, Round Robin, Multi – Levels users Algorithm.<br>**SECTION–B**<br>**Memory Management:** Concept of Relocation, Swapping, backing storage, swap time, MFT, MFT job scheduling, region size selection, memory fragmentation, MVT, MVT job scheduling compaction, paging, segmentation.<br>**Virtual Memory**: Overlays, demand paging, page fault, performance of demand paging, page replacement, page replacement algorithm, FIFO, Optimal page replacement, Thrashing. |
| **October-November** | **SECTION–C**<br>**Device Management**: I/O and device management physical characteristics, FCFS, SSTF, SCAN, CSCAN.<br>**File Management**: Disk and File Management<br>**SECTION–D**<br>**Deadlocks**: Definition, Necessary condition for deadlock, Deadlock Prevention Mutual exclusion, Hold and wait, No pre–emption, circular wait Banker's algorithms, Recovery from deadlock, semaphores. |

**Prescribed Book**

**Book Name** – Introduction to Operating Systems

**Author –** Charanjit Singh

**Publisher –** Kalyani Publishers

**Time: 3 Hrs. Max. Marks: 100**

| Month wise Division | Syllabus Unitization |
|---|---|
| **August** | **SECTION–A**<br>E – Commerce: Its definition, aims, process tools and results, EDI, VAN's and internet as Promoters, Types of E – Commerce, Commerce – net. Steps to Star E – Commerce: H/W & S/W Requirements, steps involved in opening your own online business. EDI: EDI Vs Traditional Systems, EDI enabled procurement process, components of EDI system, EDI implementation issues. |
| **September** | **SECTION–B**<br>Concerns for E – Commerce: Basic challenges to E – Commerce, Technological, legal and regulators heads, Internet Bandwidth & Technological Issues. NII: Technical issues, standards & Services GII, Issues that confront us in relation to securing electronic transactions. Implementation of digital signatures. Authentication Mechanisms. Electronic cash, its elements, legal issues, risks, paper document versus Electronic document Laws for E – Commerce legal issues for Internet Commerce. Re – Engineering for Change: Business process re – engineering BPR, Methodology Planning Methods for change to EC / EDI.<br>**SECTION–C**<br>Case Studies: To demonstrate usefulness of E – Commerce in various business areas. Banks, Reservations, E – Governance, supply – chain, Management, manufacturing, retailing and online – publishing. |
| **October-November** | **SECTION–D**<br>E – Commerce in India: EDI service providers in India, EDI Projects in the Government regulatory agencies. The Internet in India, laws for E – Commerce in India. |

**Prescribed Book**

**Book Name** – E-Commerce

**Author –** Sartaj Singh

**Publisher –** ABS Publications

**B.Sc. (Information Technology)**
**Batch from Year 2021 to Year 2024**

# Semester–V
## Paper – IV

**Time: 3 Hours**                                              **Max. Marks.: 50**

## Paper – V

**Time: 3 Hours**                                              **M.Marks: 50**

Practical Lab: Operating Systems