

SYLLABUS

B.SC (IT) First Year

MAGADH UNIVERSITY

Part	Paper	Section	Subject/Topic
I	I	A	FUNDAMENTALS OF INFORMATION TECHNOLOGY
		B	STRUCTURED PROGRAMMING USING 'C' LANGUAGE
		C	INTRODUCTION TO IBM ARCHITECTURE
	II	A	DATABASE MANAGEMENT SYSTEM
		B	OPERATING SYSTEM CONCEPTS-DOS, WINDOWS, UNIX
		C	BASIC ELECTRONICS

PAPER-I
SECTION –A
(FUNDAMENTALS OF INFORMATION TECHNOLOGY)

UNIT –I (HARDWARE)

- ^ **Brief History of development of Computers**
- ^ **Computer System Concepts Features**
- ^ **Basic components of Computer Hardware, CPU, Memory & I/O Unit**
- ^ **CPU Organization** : CU, ALU, Registers.
- ^ **Memory Organization** : RAM, ROM, EPROM, PROM, Cache Memory
- ^ **I/O Organization** : VDU, Keyboard, Mouse and Secondary I/O devices.
- ^ **Mass Storage Organisation** : Magnetic Tape, Magnetic Disk, CD, DVD, Flash Storage Devices
- ^ **Data Representation** : Number systems-Binary, Decimal, Octal, 2's Complement, ASCII & EBCDIC Codes.

UNIT –II (INTRODUCTION TO SOFTWARE)

- ^ **Types of Software**
- ^ **System Software** : Operating Systems, Command interpreters, Translators-
(*Assemblers, Compilers, Interpreters*)
- ^ **Types of Operating Systems** : Batch Processing, Single Process Monitors,
Multiprogramming –
Real Time, Online, Multiprocessing
- ^ **Programming Languages** : Machine Language, Assembly Language, High Level
Languages
- ^ **Application Packages** : Word Processors, Spread Sheet, Presentations
- ^ **Computer Viruses** : Working & Spread of Viruses, Types, Control of viruses
- ^ **Communication & Transmission**
- ^ **Analog & Digital Signals**
- ^ **Modulation – Demodulation (MODEM)**
- ^ **Transmission Mode** : Simplex, Half Duplex, Duplex
- ^ **Line Configuration** : Point to point, Multipoint
- ^ **Definition of computer networks**
- ^ **Network Types** : LAN, WAN & MAN
- ^ **Topologies**
- ^ **Communication Protocols**

References

COMPUTER TODAY	– by S. K. Basandra, Galgotia Publication
FUNDAMENTAL OF INFORMATION TECHNOLOGY	– by Alexis Leon & Mathews Leon, Vikas Publishing House New Delhi
COMPUTER FUNDAMENTALS	– by P.K. Sinha BPB Publications

SECTION – B
(STRUCTURED PROGRAMMING USING 'C' LANGUAGE)

UNIT – I (PROGRAMMING CONCEPTS)

- ⤴ **Programming & Program Development**
- ⤴ **Flow Charts**
- ⤴ **Pseudo Codes**
- ⤴ **Programming Technique** : Structured Programming, Top-Down approach,
Bottom – Up Approach
- ⤴ **Object Oriented Programming**

UNIT – II ('C' Programming Language)

- ⤴ **Overview** : History & Features
- ⤴ **Structure of a 'C' Program**
- ⤴ **Variables, Expressions, Identifiers, Keywords, Data types & Constants, Operators** – Arithmetical, Logical, relational, Conditional & Bitwise.
- ⤴ **Operators Precedence & Associativity**
- ⤴ **'C' – I/O** – Character Based & Formatted
- ⤴ **'C' Control Statements** : Decision Control – if, if__else, nested if__else
- ⤴ **Loops/Iteration** : While, do__while, for loops
- ⤴ **Arrays** : Single & Multi-Dimensional
- ⤴ **Strings**
- ⤴ **Functions** : Call by Value & Call by Reference
- ⤴ **Introduction to pointers**
- ⤴ **Recursion**
- ⤴ **Structure & Unions**
- ⤴ **C-Files**

References

PROGRAMMING IN 'C'	– by E. Balaguruswamy, TMH Publications
PROGRAMMING WITH 'C'	– by Gottfried, Schaums Series TMH Publications
LEVEL PROGRAMMING CONCEPTS 7 SYSTEMS	– by V.K. Jain, BPB Publications
'C' COMPLETE REFERENCE	– by Herbert C, TMH Publications

SECTION – C
(INTRODUCTION TO IBM ARCHITECTURES)

- ⤴ **Microprocessors & Microprocessors Families**
- ⤴ **Personal Computers – IBM & Apple Series**
- ⤴ **IBM PC Characteristics – PC / PC AT / PCXT**
- ⤴ **8086 Architecture**
- ⤴ **DMA controller & Configuration**
- ⤴ **VGA Controller**
- ⤴ **Arithmetic Co-Processor**
- ⤴ **Clocks**

References

IBM PC	– by Peter Norton
COMPUTER ORGANISATION & ARCHITECTURE	– by William Stallings, TMH Publications

Section – A
(DATA BASE MANAGEMENT SYSTEMS)

UNIT – I (DBMS BASICS)

- ⤴ DBMS vs Files
- ⤴ Organizations of DBMS
- ⤴ Three Views & Schemas of DBMS
- ⤴ DOL, DML, Queries, SQL
- ⤴ Types of DBMS: *Relational, Hierarchical & Network*
- ⤴ E- R Diagrams
- ⤴ Generalization, Specialization, aggregation

UNIT – II (RDBMS)

- ⤴ **Relations** : Definition, Functional Dependency Domain, Attributes, Tuples, Fields
- ⤴ **Key** : Candidate Key, Primary key, foreign key
- ⤴ **Codd's Rules**
- ⤴ Normalization Up to **BCNF**
- ⤴ **Example** RDBMS – ORACLE (*Practical Classes*)

References

DATABASE SYSTEM CONCEPT	- by Korth & Siblingschatz
AN INTRODUCATION TO DATABASE SYSTEM	- by Bipin Desai
DATABASE MANAGEMENT SYSTEM	- by Leon & Leon, Vikas Publication
AN INTRODUCATION TO DATABASE SYSTEM	- by C.J. Date

Section – B
(OPERTATING SYSTEM CONCEPTS)

UNIT - I (OS BASICS)

- ⤴ Definition of OS
- ⤴ Function of OS
- ⤴ Types of OS

UNIT – II (PROCESS MANAGEMENT)

- ⤴ Process Definition
- ⤴ PCB, Process States
- ⤴ Scheduling – algorithms & Types
- ⤴ FCFS, SJF Round Robin
- ⤴ LTS, STS, MTS
- ⤴ Preemptive & Non-Preemptive Scheduling
- ⤴ Deadlocks – Avoidance, Detection & Recovery
- ⤴ Inter-process Synchronization – Semaphores & Mutual exclusion

UNIT III (MEMORY MANAGEMENT)

- ⤴ Fixed & Dynamic Partitions
- ⤴ Compaction
- ⤴ Paging
- ⤴ Segmentations
- ⤴ Virtual memory, page Replacement Algorithms

UNIT – IV (DEVICE MANAGEMENT)

- ⤴ Overview – Types of I/O – Serial & Block I/O
- ⤴ Programmed I/O
- ⤴ Interrupt Driven I/O

- ⤴ DMA
Polling, Daisy- Channing, Multiple Interrupt lines
- ⤴ Device Drivers & Device Controllers, BIOS, IS, Devices Independent Software

UNIT -V (FILE MANAGEMENT)

- ⤴ Blocks, Sectors, Clusters, Directories
- ⤴ Files – Concepts & Definitions
- ⤴ Types of files & Organisation
- ⤴ Disk free Space Management
- ⤴ Disk free Space Allocation
- ⤴ Disk Scheduling

UNIT - VI (DISK OPERATING SYSTEM (DOS))

- ⤴ History & versions
- ⤴ Booting – FAT, Directory Structure
- ⤴ DOS Systems Files
- ⤴ DOS commands – Internal & Externals
- ⤴ DOS Batch Files

References

OPERATING SYSTEM CONCETP	: by Galwin & Stiberschatz
OPERATING SYSTEMS	: by Tenanbaum
OPERATING SYSTEMS	: by Dietel

SECTION -C **(BASIC ELECTRONICS -I)**

UNIT -I

- ⤴ Types of resistance, Resistance symbol, color code capacitors, capacitors, symbol, Code types, Mica & paper capacitor, Inductance, Conductor, Insulator, Band Theory, Intrinsic & extrinsic semiconductors, Theory of p-n Junction, Capacitance & Diffusion Capacitance

UNIT - II

- ⤴ Zener diode, Tunnel diode, Varactor diode, Power diode, photo diode, LED, LCD, Point Contract diode, Schottky diode, Half wave & full wave rectifier with & without filter

UNIT - III

- ⤴ BJT Characteristics, CE, CB, CC configurations, FET metal oxide, Semiconductor (MOSFET)
 - ⤴ CMOS, Unijunction transistor & Photo transistor.

UNIT - IV

- ⤴ Single stage RC coupled amplifier frequency response class A, Class B, Class AB, Class C, Push pull amplifier, Efficiency distortion in amplifier their merits & demerits, BJT & FET RC coupled amplifiers.

UNIT - V

- ⤴ Switching Characteristic BJT & FET, Monostable & Astable Multivibrators, RC integraotrs & differentiators, Clipper & Clamber circuit.

Reference

BASIC ELECTRONICS	– by B. L. Thareja
BASIC ELECTRONICS	– by A.K. Sahani
BASIC ELECTRONICS	– by V.K. mehta

Note: syllabus can be change as semester and by Magadh University. vjy softworx have note responsibility for that