

# University Centre for Distance Learning



**Syllabi & Scheme of Examination**  
**PGDCA/MCA-1<sup>st</sup>/Msc-1<sup>st</sup>**  
**2014-2015**

## Chaudhary Devi Lal University Sirsa (Haryana)

Website: [www.cdлу.ac.in](http://www.cdлу.ac.in)



## SCHEME OF EXAMINATIONS

### PGDCA/MCA/M.Sc.-1<sup>st</sup>

(Distance Education Mode)

Paper Code		Course Nomenclature	Ext. Ass.	Inter. Ass.	Min. Pass Marks	Time
<b>PGDCA</b>	<b>MSc/MCA</b>					
PD11	131	Computer Fundamentals	70	30	35	3 Hrs.
PD12	132	Problem Solving Through C	70	30	35	3 Hrs.
PD13	133	Computer Organisation	70	30	35	3 Hrs.
PD14	134	Structured System Analysis	70	30	35	3 Hrs.
PD15	135	Data base System and Design	70	30	35	3 Hrs.
PD16	136	SW Lab-I Based on PCDCA-III)	50		20	
PD17	137	SW Lab-II (Based on PCDCA-V)	50		20	
		<b>Total</b>	<b>600</b>			

Note : A student is required to score 50% marks in aggregate in order to pass the theory and practical examination. Minimum pass marks in the individual practical and theory subject is 35% as explained above.

There will be 600 marks for practical and theory examination of which a candidate is required to score minimum of 300 marks in order to pass the examination.

**PGDCA/MCA/M.Sc. - I**  
**COMPUTER FUNDAMENTALS**

Maximum Marks: 70  
Time Allowed: 3 Hrs.

The question paper will consist of Ten questions. Candidates are required to attempt any five questions in all.

Evolution of computer, components of computer, block diagram of computer, number system, conversion of one number system into another, r's and (r-1)'s complement of a number, binary arithmetic, boolean algebra, logic gates and circuits, Flip Flops: SR, edge triggered, JK, master-slave, D and T flip flops, counters, registers.

Memory organization: memory hierarchy, RAM;ROM, flash memory, secondary storage technologies and their characteristics, optical memories, hard disk drives, head mechanisms, concepts of high speed memory, virtual memory, cache organisation, the concepts of device controllers, input-output devices, DMA, input-output processors, hard drives, floppy drives, CD-ROM and DVD-ROM, zip, recordable CDs, CD-RW, input/output technologies and characteristics, video cards, monitors, USB port, liquid crystal display (LCD), sound cards, modems, printers, scanners, digital cameras, keyboards, mouse, etc.

Central Processing Unit, instruction and instruction set, instruction format, types of instructions, types of operands, addressing modes and their importance, registers, description of various types of registers, need and importance of registers.

Computer languages: LLL, HLL & Assembly languages and their advantages and disadvantages, assembler, compiler, interpreter, operating system and its characteristics.

**References**

1. Mano M Morris. Digital Logic and Computer Design. PH India Pvt. Ltd. 2000.
2. Rajaraman V.. Radhakrishan T.. An Introduction To Digital Computer Design, Prentice Hall of India Pvt. Ltd. 4,h Ed.
3. ITL ESL, Introduction to Computer Sciences. Pearson Education.
4. ITL ESL. Introduction to Information Technology. Pearson Education.
5. Hayes J.P .. Computer Architecture and Organization, McGraw Hill 1998 Third Ed.
6. SinhaP.K .. Introduction to Computers, BPB Publications.

**PGDCA/MCA/M.Sc. - II**  
**COMPUTER ORGANISATION**

Maximum Marks : 70  
Time Allowed : 3 Hrs.

The question paper will consist of **Ten** questions. Candidates are required to attempt any five questions in all.

Information Representation: Number system. Binary codes: BCD code, weighted codes, self complementing codes, sequential codes, cyclic and gray codes, error detection. and correction code, fixed-point and floating point presentation of information. Binary arithmetic operations, Booth Multiplication.

Binary Logic: Boolean Algebra, Boolean functions, truth tables, canonical and standard forms, simplification of Boolean functions, digital logic gates.

Combinational Logic: design of combinatorial and sequential circuits, adders, decoders, multiplexes, encoder's comparators Design procedure, adders, subtracters, encoders, decoders, multiplexers, demultiplexers and comparators.

Sequential Logic: Flip-Flops, shift registers and counters.

Memory System: Memory Parameters, semiconductor RAMs, ROMs, magnetic and optical storage devices.

CPU organization: Processor organization. Machine instructions, instruction cycles, instruction formats and addressing modes, microprogramming concepts, microprogram sequencer.

I/O Organization: I/O interface, interrupt structure, transfer of information between CPU/Memory and I/O devices, and IOPs.

**References:**

- 1 Mano M Morris Digital Logic and Computer Design, Prentice Hall of India Pvt. Ltd .. 2000.
- 2 Mano. Computer System Architecture, 3/e, Pearson Education.
- 3 Carpinelli, Computer Systems Organization & Architecture, Pearson Education.
- 4 Rajaraman. V., Radhakrishanan. T., An Introduction To Digital Computer Design. Prentice Hall of India Pvt. Ltd., 4th Ed.
- 5 Hayes. J.P .. Computer Architecture and Organization. McGraw Hill, 1998. Third Ed.
- 6 Heuring, V.P., Jordan, H.F., Computer System Design and Architecture, Addison Wesley. 2000.

**PGDCA/MCA/M.Sc. - III**  
**PROBLEM SOLVING THROUGH C**

Maximum Marks: 70

Time- Allowed: 3 Hrs

*The question paper will consist of Ten questions. Candidates are required to attempt any five questions in all.*

Algorithmic development technique of problem solving, flow charting, decision table structure programming concepts, modular programming, algorithm for searching, sorting and merging, programming methodologies; top down and bottom up programming.

Elements of C: character set identifier and keywords, data type, declaration and definition.

Operators: arithmetic, relational, logical, bit wise, unary, assignment and conditional operators their hierarchy and associativity.

Data input/output.

Control statements: sequencing, selection, if and switch statement; repetition / loop statements: for, while, and do while loops; break, continue and goto statements.

Function: definition, prototype, passing parameters, recursion.

Data Structures: arrays, structure, union, string, data files.

Pointer: declaration, operation of pointers, array to pointers, pointers to arrays.

**References:**

- 1 Clion & Koffman, Problem Solving and Program Design in C 3<sup>rd</sup> Ed. Addison Wesley, 2000.
- 2 Kelley. Book on C Programming in C 1<sup>st</sup> Ed .. Addison Wesley 2000.
- 3 Yashwant Kanetker. Let us C, BPB Publications.
- 4 Gottfried. Programming with C. Tata McGraw Hill. 5<sup>th</sup> ed. Problem Solving and Program Design in C, 4/e, Pearson Education.

**PGDCA/MCA/M.Sc. - IV**  
**STRUCTURED SYSTEM ANALYSIS AND DESIGN**

Maximum Marks: 70  
Time- Allowed: 3 Hrs

The question paper will consist of Ten questions. Candidates are required to attempt any five questions in all.

System concept: Information system environment, system development life cycle, role of system analyst, and automatic tool for system development.

System analysis, requirement determination and specification, feasibility study, information gathering, structuring system, requirements process modeling, logic modeling and conceptual data modeling.

System Design: Designing forms and reports, interface and dialogues, databases process, input/output file.

Implementation: preparing for implementation, planning, test plans, .program development, implementation management, changeover and routing operations.

Maintenance and Review: type of maintenance, cost of maintenance, performance evaluation.

**Reference:**

- 1 Hoffer, Modern Systems Analysis and Design, Pearson Education.
- 2 Modern System Analysis Design, Hoffman J.A., George J.F., and Valacic J.S .. Addison-Wesley Second Edition.
- 3 Element of System Analysis, Gore Marvin et. al., Galgotia Book Source, Third Edition.
- 4 Introducing System Analysis and Design, Lee, Galgotia Book Source Combined Two Volume Set.
- S System Analysis and Design, Awad E. M.,Galgotia Book Source.

**PGDCA/MCA/M.Sc. - V**  
**DATA BASE SYSTEMS**

Maximum Marks: 70  
Time- Allowed: 3 Hrs

The question paper will consist of Ten questions. Candidates are required to attempt any five questions in all-

Basic Concepts: A Historical. Perspective File System vs DBMS, Characteristics of the Data Base Approach, Abstraction and Data Integration, Database users, Advantage and Disadvantage of DBMS, Implications of Data Base approach.

Data Base System Concept Architecture: Data Models, Schema and Instances. DBMS architecture and Data Independence, Data base language & Interfaces. DBMS function and component modules.

Entity Relationship Model: Entity Types, Entity Sets, Attribute Keys, Relationships Relationship Types, Role and Structural Constraints, Design issues, weak entity types. E-R Diagrams.

Relational Data Model: Relational model concepts, Integrity constraints over Relations Relational Algebra, Basic Operations.

SQL: Data Definition, Constraints & Schema Change in SQL, Insert, Delete, update statement in SQL, view in SQL, Specifying Constraint and Indexed in SQL, Queries in SQL.

Conventional Data Model: An overview of Network and Hierarchical Data Models.

Relational Data Base Design: Functional Dependencies, Decomposition Desirable properties of decomposition. Normal Form based on primary key (1NF, 2NF, 3NF and BCNF).

Locking Techniques, Time stamp Ordering, Multiversion Techniques, Optimistic Techniques. Granularity of Data Items.

Recovery concepts. Recovery Techniques in Centralized DBMS.

Data Base Security: Introduction to Database Security issues.

**Reference:**

1. Elmasri Navathe, Fundamental of Database Systems, 3<sup>rd</sup> Edition, Addison Wesley New Delhi.
2. Singh, Database Systems: Concepts, Design & Applications, Pearson Education.
3. Korth Silberschatz, Database System Concept, 4<sup>th</sup> Edition, McGraw Hill International Edition.
4. C.J.Date, An Introduction to Database Systems, 7th Edition. Addison Wesley, New Delhi.
5. Bipin C. Desai, An Introduction to Database Systems, Galgotia Publications. New Delhi
6. Ivan Bayross. SQL PL/SQL- The Programming Language of ORACLE. BPB Publications, New Delhi.