

- Software Requirements: Requirements analysis ,Requirement Solicitation ,analysis Tools ,Requirement definition ,Requirement Specification ,static and Dyanamic Specifications ,Requirement Review
- Software Design: Design for reuse ,design for change, design notation ,design evalution and validation.
- Implementemation :Programing Standards and Procedures ,Modularity ,data Abstraction ,Static analayis, Unit Testing ,Intregation Testing ,Regression Testing, Tools for Testing , Fault Tolrence
- Maintenance :The maintenance Problem ,the nature of maintaince ,Planning for maintaince
- SE issues: Formal methods ,tools and environments for Software Engineering ,role of Programming Paradigm ,Process Maturity and Improvement ,ISO Standards,SEI-CMM,CASE Tools

#### 6. Database Management System

10 marks

- Introduction:The Relational Model,ER Model ,SQL,Functional Dependency and Relational databse Design ,File Structure
- Transaction Management and Concurrency Control: Concurrent Execution of the User Programs ,Transactions ,Concurrency Control Techniques
- Crash Recovery :Types of Failure ,Recovery Techniques
- Query Processing and Optimization
- Indexing :Hash Based Indexing ,Tree based indexing
- Distributed database Systems and Object Oriented Database System
- Data mining and Data Warehousing
- Security Management System

#### 7. Operating System

10 Marks

- Process and Threads: Symmetric Multiprocessing , Micro-kernels, Concurrency, Mutual Exclusion and Synchronization, Deadlock
- Scheduling
- Memory Management
- Input Output and Files: I/O devices and its Organization ,Principles Of I/O Software and hardware ,disks, Files and Directories Organization ,File System Implementation.
- Distributed Systems: Distributed Message Passing ,RPC ,Client/Server Computing ,Cluster
- Security: Authentication and Access Authorization, System Flaws and Attacks ,Trusted System

#### 8. Computer Graphics,Complier Design, Artificial Intelligence

10 Marks

( ख ) दोस्रो चरण :- प्रयोगात्मक परीक्षा

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|-------------------------------|----------|
| 1. Computer Fundamental       | 20 Marks |
| 2. Computer Networks          | 10 Marks |
| 3. Technical Proposal Writing | 10 marks |
| 4. Computer Programming       | 10 Marks |

*[Signature]*