

लोक सेवा आयोग  
नेपाल विविध सेवा, राजपत्रांकित द्वितीय श्रेणी, कम्प्युटर निर्देशक / सूचना प्रविधि निर्देशक पद को खुला र  
आन्तरिक प्रतियोगितात्मक लिखित परीक्षाको पाठ्यक्रम

द्वितीय पत्र :- सेवा सम्बन्धी प्राविधिक विषय

**1. Introduction**

- 1.1 General concept of IT planning.
- 1.2 Importance of IT in national development.
- 1.3 Social and cultural aspects of IT.
- 1.4 Global information superhighway

**2. Software Engineering**

- 2.1 System development life cycle- JAD, RAD, Waterfall, Spiral.
- 2.2 Software project management.
- 2.3 Requirement analysis.
- 2.4 System, data and process modeling.
- 2.5 Software testing.
- 2.6 Software quality assurance.
- 2.7 Software quality standards: ISO, SEI, CASE Tools.
- 2.8 Software cost estimation.

**3. Computer Architecture & Organization**

- 3.1 Instruction set architecture.
- 3.2 CPU design and architecture.
- 3.3 Memory hierarchy.
- 3.4 Input / Output system.
- 3.5 CISC vs. RISC

**4. Operating Systems**

- 4.1 Components of the Operating Systems.
- 4.2 Processes.
- 4.3 IPC and deadlocks.
- 4.4 Memory management.
- 4.5 Input / Output and files.
- 4.6 Scheduling.
- 4.7 Different types of OS (DOS, UNIX, LINUX, WINDOWS).
- 4.8 Distributed Operating System.
- 4.9 Security issues.

**5. Information Systems**

- 5.1 Information systems fundamentals.
- 5.2 Design of information systems building blocks.
- 5.3 Management system development.
- 5.4 Management Information System.
- 5.5 Decision support system.
- 5.6 ERP, CRM and SRM.

**6. Computer Networks**

- 6.1 Network fundamentals.
- 6.2 OSI model.
- 6.3 Network protocols.
- 6.4 TCP / IP services (DNS, SMTP, FTP, DHCP, etc)
- 6.5 Network infrastructures (LAN and WAN including IEEE 802. standards).
- 6.6 VAN and remote access.
- 6.7 Internet and WWW.
- 6.8 Disaster recovery.
- 6.9 Distributed system.
- 6.10 Privacy and security issues.

**7. Database Management System**

- 7.1 Database model.
- 7.2 SQL.
- 7.3 Functional dependency.
- 7.4 Database design.
- 7.5 Transaction management and concurrency control.
- 7.6 Query processing and optimization.
- 7.7 Normalization.
- 7.8 DBSC architecture.
- 7.9 Data mining and warehousing.
- 7.10 Basic concept of major DBSC products (Oracle, DB2, Sybase, MSSQL server, etc)

**8. IT Strategy**

- 8.1 Strategic use of IT.
- 8.2 Porter 5 Forces model.
- 8.3 Formulating long-term objectives;
  - 8.3.1 Long-term objectives.
  - 8.3.2 Generic strategies.
  - 8.3.3 The value disciplines.
  - 8.3.2 Grand strategies.
- 8.4 Strategic analysis and choices.
- 8.5 Value chain analysis.
- 8.6 SWOT analysis.
- 8.7 Core competencies.
- 8.8 Strategy control and continuous improvement.
- 8.9 Strategy implementation.

**9. E-Commerce Technology**

- 9.1 Introduction to E-Commerce.
- 9.2 Business models of E-Commerce.
- 9.3 B2B E-Commerce and EDI.
- 9.4 Business applications of E-Commerce.
- 9.5 Electronic payment system.
- 9.6 Security issues of E-Commerce.
- 9.7 PKI and digital signature.
- 9.8 Encryption and decryption methods.

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**10. E-Government**

- 10.1 Managing E-Government.
- 10.2 E-Government strategy.
- 10.3 Managing public data.
- 10.4 Emerging issues of E-Government.
- 10.5 Implementing E-Government.
  - 10.5.1 E-Government system life cycle and project assessment.
  - 10.5.2 Analysis of current reality.
  - 10.5.3 Design of new E-Government system.
  - 10.5.4 E-Government risk assessment and mitigation.
  - 10.5.5 E-Government system construction implementation and beyond.
- 10.6 Nepalese E-Government initiative and E-Government master plan of Nepal.
- 10.7 Government enterprise architecture and government portal.
- 10.8 Government integrated data center.
- 10.9 Focal agencies for E-Government (NITC, HLCIT, OCCA, etc).

**11. Project Management**

- 11.1 Requirement engineering.
- 11.2 PERT / CPM network.
- 11.3 Investment analysis and breakeven analysis.
- 11.4 Time value of money.
- 11.5 Financial analysis.
- 11.6 Software estimation.
- 11.7 Configuration management.
- 11.8 Team building approach.
- 11.9 Issue tracking and management.
- 11.10 Verification and validation.
- 11.11 Business process reengineering.

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