Nepal Government
Ministry of Communication and Information Technology
National Information Technology Center (NITC)

Post: IT Director
Class: Gazette II

Syllabus

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.
6. **Computer Networks**
   6.1 Network fundamentals.
   6.2 OSI model.
   6.3 Network protocols.
   6.4 TCP/IP services (DNS, SNTP, FTP, DHCP, etc).
   6.5 Network infrastructures (LAN and WAN including IEEE 802. standards).
   6.6 VPN 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 DBMS products (Oracle, DB2, 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.

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 (MOCIT, NTA, NITC, DOIT, 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.

12. Information Security
12.1 Introduction and Security Trends
12.2 Application Security
12.3 Cryptography, encryption and decryption methods
12.4 PKI and digital signature
12.5 Network Security
12.6 Authentication and Access Control
12.7 Computer Forensics
12.8 Privacy, Law and Ethics

13. Data Center Management
13.1 Introduction to Data Center
13.2 Generation of Data Center
13.3 Components of Data Center
13.3 Difference between Data Center and Disaster Recovery Center
13.4 Emerging technologies in Data Center

Note:
- Medium of exam is Nepali or English or Both
- No Negative marks