नेपाल विद्युत प्राधिकरण

प्राविधिक सेवा, कम्प्युटर ईन्जिनियरिङ्ग समूह, तह–९, उप प्रवन्धक पदको खुला तथा आन्तरिक प्रतियोगितात्मक लिखित परीक्षाको पाठ्यक्रम

द्वितिय पत्र: सेवा सम्वन्धी बिस्तृत ज्ञान

खण्ड क: (२x१५=३०, १x२०=२०) - ५० अंक

1. IT Strategy and Planning

IT planning and strategy, Importance of IT in National development, Social and culture aspect of IT, information superhighway, SWOT analysis, Strategic use and Implementation of IT

2. Computer Architecture

CPU, Control Unit, RISC and CISC computers, Arithmetic and logic unit, Addressing modes, Memory system, I/O organization

3. Data Communications and Computer Networks

Analog and Digital signals modulation in analog and digital communication, OSI 7 layers. Types of networking, topologies, types of media, Layers, Protocols, Hubs, Bridge and Routers, TCP/IP Network, IP address and Network mask, Network traffic analysis, Protocols used in TCP/IP, Proxy and DHCP concept in TCP/IP Network

4. Software Engineering and Software Project Management

Information System and Modern System Analysis Technique, System Development Lifecycle, Object oriented Software Development, Agile software development , Client Server Computing, Clean room software Development, Software testing Software validation technique, Software Quality and Quality Assurance, Software reengineering, Configuration Management, PERT/ CPM network , COCOMO Model, Investment analysis and breakeven analysis. Time value of money, Financial analysis, Software estimation, Configuration management, Team building approach, Issue tracking and management Verification and Validation, Business processing engineering

5. Artificial Intelligence and Expert Systems

Concepts of artificial intelligence, Overview of knowledge-based and expert systems, Logic programming, Programming languages (LISP and Prolog) for AI and expert system implementation, Knowledge representation, Rule-based and object-based systems

6. Information Security

Classification of Data from security point of view, Risks of data loss, Security methods to be adopted (Operation Security, Backup of data, Data Access through login, Protection against viruses), Security principle of an organization

7. Operating Systems

Overview of operating systems, functionalities and characteristics of OS, Job and processor scheduling, scheduling algorithms, process hierarchies. Deadlock: prevention, detection, avoidance, banker's algorithm, Virtual storage management, page replacement strategies, File management, UNIX and Linux operating systems as case studies

8. Computer Networks

Network fundamentals,OSI model, Network protocols, TCP / IP services (DNS, SNTP, FTP, DHCP), Network infrastructures (LAN and WAN including IEEE 802. standards), VAN and remote access, Internet and WWW, Disaster recovery, Distributed system, Privacy and security issues

खण्ड ख: (२x१५=३०, १x२०=२०) - ५० अंक

9. Databse Management Systems

Database model and design, Entity relationship diagram, Data Flow Diagram, Normalization, Structured Query Language, Data mining and warehousing, Transaction management and concurrency control, Query processing and optimization., Normalization, DBSC architecture, Basic concept of major DBSC products

10. Information Systems

MIS and its Components, Function of MIS department, Introduction of Information Systems, Types of Information Systems, Components of information Systems, Introduction of Information Technology and its components, Potential dangers from use of computer systems, ERP, CRM, SRM, Design of information systems building blocks, Management system development, Decision support system

11. E-Commerce Technology

Introduction to E-commerce, Technology Infrastructure for E-commerce, Business Concepts, Business application and Social Issues in E-commerce, Electronic payment system, security issues in Ecommerce, PKI nd digital signature, Encryption and decryption methods

12. E-Government

e-Government and e-Governance, e-Government strategy, Public data management, e-Government implementation, e-Government master plan of Nepal, Government Enterprise architecture and government portal, Data Center, E-Government risk assessment and mitigation, Focal agencies for E-Government (NITC, HLCIT, OCCA, etc)

13. Latest Trends and Technologies

RFID technology and its usage, Wi-Fi (Wireless internet) technology, how it works, its frequency band and bandwidth, Gigabit Ethernet, Fiber optics communication technologies and its implementation,IPV6 concepts, Bluetooth technologies and its implementation, Grid computing, Cloud Computing, Big Data, Internet of Things, Bio informatics, image processing

14. ICT Policies, Acts/ Regulations and Standards

IT Policy of Nepal, Electronic Transaction and Digital Signature Act of Nepal, IPR of Nepal, Cyber Crime, Copy Right Act of Nepal, ISO Standards, WWW and Internet Standards and Regulations

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