gful/s nufgL sf]f

k|ljlws ;]f, k|ljlws ;dx, 5}f}+tx, ;xfos sDKo6/ clws[t kbsf] vNnf k|tof]utfTds k/LIffsf] kf7oqmd

kf7oqmdsf] ?k/]vf M– o; kf7oqmdsf] cfwf/df lgDgfg';f/ r/0fdf k/LIff lnOg]5 M

kyd r/0f M–	lnlvt k/LIff	k0ff{ M– !%)
låtLo r/0f M–	-s_ kof}ufTds	k0ff{ M– %)
	-v_ cGtjf{f{	k0ff{ M– #)

kyd r/0f– lnlvt k/LIff of]hgf (Examination Scheme)

kq	ljifo	k0ff{	pQL0ff{	k/LIff kf}ffnL	k[Zg ;+Vof / cÍef/	;do
kyd	sDKo6/ ;DaGwL ljifo	!))	$)	j:tlut ax'j}slNks (Multiple Choice)	%)×@Ö!))	$% ldg]6
låtLo		%)	@)	ljifout (Subjective)	%×!)Ö%)	! 306f #) ldg]6

låtLo r/0f

qm=;+	ljifo	k0ff{	pQL0ff{	k/LIff kf}ffnL	k[Zg ;+Vof / cÍef/	;do
-s_	kof}ufTds k/LIff	%)	@%	kof}ufTds	%×!)Ö%)	! 306f #) ldg]6
-v_	cGtjf{f{	#)	–	df}vs	–	–

!= lnlvt k/LIffsf] dfWod efiff g]kfnL cyjf c+u|]hL cyjf g]kfnL / c+u|]hL b'j}xg ;Sg]5 .

@= kf7oqmdsf] kyd tyf låtLo kqsf] k/LIffsf] ljifoj:t' Pp6} xg]5 . kof}ufTds k/LIffdf kf7osf] kl/R5]b @,#,$,% / ^ af6 dfq k[Zg ;f]lwg]5 .

#= kyd / låtLo kqsf] lnlvt k/LIff 5§f5§} xg]5 .

$= ax'j}slNks k[Zgx? xg] k/LIffdf sg}kl;f/sf] SofNsn]6/ (Calculator) kof]u ug{ kfO{g]5g .

%= o; kf7oqmd of]hgf cGtu{tsf kq÷ljifosf ljifoj:tdf h];'s}n]vPsf] eP tfklg kf7oqmddf k/]sf sfgg, Pg, lgod tyf gLltx? k/LIffsf] ldlt eGbf # dlxgf cufl8 -;+zf]wg ePsf jf ;+zf]wg eO{ x6fO{Psf jf yk u/L ;+zf]wg eO{ sfod /x]sfnfO{o; kf7oqmd vf/]h ul/Psf]5 .

gful/s nufgL sf]f

k|ljlws ;]f, k|ljlws ;dX, 5ff}+tx, ;xfos sDKo6/ clws[t kbsf]vNnf k|tof]utfTds k/Lffsf]kf7oqmd

1. Computer Fundamentals & Operating System

1.1. Generation of Computers,
1.2. Components of Computers : Input Devices, Processing, Storages devices, Output devices
1.3. Computer Viruses & Antivirus,
1.4. Basic components of the Operating Systems,
1.5. Understand Information Storage and Management Systems,
1.6. List Disk Allocation and Scheduling Methods,
1.7. Basic Memory Management strategies,
1.8. Virtual Memory Management Techniques,
1.9. Process Management System,
1.10. Process Scheduling;
1.11. Inter-Process Communication and Deadlocks,
1.12. Concepts of Parallel and Distributed Processing,
1.13. Security Threats to Operating Systems
1.14. Overview of MS-DOS,
1.15. Windows Family, Unix Family, Linux Family of Products.
1.16. Windows Architecture & Linux Architecture
1.17. Troubleshooting Windows & Linux
1.18. Users, Groups and Permission Linux and Windows. Memory Hierarchy,

2. Data Structure and Algorithms:

2.1. Fundamental of Data Structures,
2.2. Abstract Data types,
2.3. Lists, Linked Lists, Stacks,
2.4. Queues, Priority Queue,
2.5. Trees: Traversal, Implementations, Binary Trees, Binary Search Trees, Balanced Search Trees, AVL Trees.
2.6. Indexing Methods. Hashing Trees, Suffix Trees,
2.7. Worst-Case and Expected time Complexity.
2.8. Analysis of Simple Recursive and Non-recursive Algorithms,
2.9. Searching, Merging and Sorting.
2.10. Introductory Notions of algorithm design: Divide-and-Conquer, Dynamic Programming, Greedy Methods, Backtracking
2.11. Object Modeling: Object -Oriented Concept, Object Structure, Object Feature, Class and Object.

3. System Analysis and Design

3.1. Defining the System, System Owner, System User, System Designers and system Builders, System Analysts, Variations on the System Analyst title, System life Cycle,

3.2. Joint Application Development (JAD): JAD definition, JAD purpose, JAD Philosophy, JAD Scope,
3.3. Sponsor, Business Users, System Analyst,
3.4. Project Leader, Record Keeper, Time Keeper.
3.5. Concept formations: Introduction, Finding the Problem, Evaluating the Proposal, Technical Feasibility, Operational Feasibility, Economic Feasibility.
3.6. Requirements analysis: Representing System Analysis Model, Requirement Model, Design Model, and Design Method.
3.7. Entity Relationship Diagram (E-R Diagram): Notations, Entities: Strong Entities, Weak Entities, Attributes: Simple and Composite, Single Valued and Multiple Valued, Null and Derived Attribute.
3.8. Relationship Sets: Degree of Relationship and Cardinality Relationship, Specialization, Generalization, Aggregation.
3.9. Data Flow Diagrams (DFDs): Introductions, Data flow Diagram, Symbol, Files or data store, External entities, Data flows,
3.10. Describing System by Data Flow Diagram: Context diagram, Top level DFD, Expansion Level DFD, Conversions of Data.
3.11. Modeling: Use Case Diagram, State Diagram, Event Flow Diagram. Documentation: Automatic and Manual System.

4. Database Management System and Design

4.1. Introduction, Database Model, Relational Database Model, Integrity, RDBMS.
4.2. SQL and Embedded SQL ,
4.3. Writing Basic SQL SELECT Statements,
4.4. Restricting and Sorting data,
4.5. Single Row Functions,
4.6. Displaying Data from Multiple Tables,
4.7. Aggregation Data Using Group Functions,
4.8. Sub Queries, Manipulating Data and Creating &Managing Tables,
4.9. Creating Views and Controlling User Access,
4.10. Using Set Operators, Date-time Function,
4.11. Database Design: Logical Design, Conceptual Design, Mapping Conceptual to Logical, Pragmatic issues, Physical Design, Integrity and Correctness, Relational Algebra, Relational Calculus,
4.12. Normalization: 1NF, 2NF, 3NF, BCNF, 4NF,5NF, DKNF,
4.13. Architecture of DBMS: Client-server, Open Architectures, Transaction Processing, Multi-User & Concurrency, and Backup & Recovery Database,
4.14. Basic Concept of major RDBMS products: Oracle, Sybase, DB2, SQL Server and other Databases.

5. Programming Language

5.1. Overview of Programming Language,
5.2. Fundamental Issues in Language Design,
5.3. Virtual Machines, Code Generation, Loop Optimization,

5.4. Concept of Procedural Programming, Structural Programming, and Object-Oriented Programming, Concept of C programming, C++ Programming,
5.5. Java Programming for Declaration, Modularity and Storage Management Software Development.

6. Networking

6.1. Basic Network Theory: Network Definition, Network Models, Connectivity, Network Addressing,
6.2. Network Connectivity: The Data Package, Establishing a Connection, Reliable Delivery, Network Connectivity, Noise Control, Building Codes, Connection Devices,
6.3. Advanced Network Theory: OSI model, Ethernet, Network Resources, Token ring, FDDI, Wireless Networking,
6.4. Common Network Protocols: Families of Protocols, NetBEUI, Bridge and Switches, The TCP/IP Protocol,
6.5. TCP/IP Services: Dynamic Host Configuration Protocol, DNS Name Resolution, NetBIOS support, SNMP, TCP/IP Utilities, FTP,
6.6. Network LAN Infrastructure: LAN Protocols on a Network, IP Routing, IP Routing Tables, Router Discovery Protocols, Data Movement in a Routed Network, Virtual LANs(VLANS),
6.7. Network WAN Infrastructure: The WAN Environment, Wan Transmission Technologies, Wan Connectivity Devices, Voice Over Data Services,
6.8. Remote Networking: Remote Networking, Remote Access protocols, VPN Technologies.
6.9. Network Security, Disaster Recovery, Disaster Recovery plan, Data backup, Fault Tolerance Using Systematic Approach to Troubleshooting.
6.10. Network Support Tools

7. E-Commerce Technology, MIS and Web Engineering

7.1. Introduction to E-Commerce,
7.2. Electronic Commerce Strategies,
7.3. Electronic Commerce Security Issues,
7.4. Success Models of E-Governance,
7.5. E-Business: b2b, b2c, b2e, c2c, g2g, g2c.,
7.6. Principles of Electronic Payment, Strategies & Systems,
7.7. E-marketing, e-Banking, EDI Methods, SWIFT,
7.8. Encryption and Decryption Methods, XML,
7.9. Information Systems and Decision Making,
7.10. Data Mining, Data Warehousing, Knowledge Management,
7.11. Work Process Redesign (Reengineering) with Information Technology,
7.12. Enterprise Resources Planning Systems,
7.13. Information Systems Security,
7.14. Information Privacy and Global Information Technology issues.

8. IT in Nepal & Policy

8.1. History of IT in Nepal,
8.2. ICT Policy of Nepal, 2072 B.S. ,
8.3. Electronic Transaction Act& Regulation, 2063 B.S. ,
8.4. Copyright Act, 2059 B.S. ,
8.5. Uses of Computers and Software Development,
8.6. Nepali Unicode, Nepali Fonts ,
8.7. Licensing Issues , Internet Governance and Digital Divide

9. Pgg, lgod, sfgGg ;DaGwL ;fdfGo hfgsf/L M

9.1 jtdfg gkfnsf] ;ljwfg,
9.2 gful/s nufgL sf]if Pgg, 2047,
9.3 gful/s nufgL sf]if -Joj:yfkg_ ljlgodfjnL, 2048,
9.4 ;fjhlgs vl/b Pgg, 2063 tyf lgodfjnL, 2064,
9.5 sDkgL Pgg, 2063,
9.6 a}s tyf ljQLo ;:yf ;DaGwL Pgg, 2063,
9=7 lwtfkq sf/fjif/ ;DalGw Pgg tyf lgodfjnL

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