

Checklist for AS

EXAM PREPARATION CHECKLIST

Information Representation

☐ Binary, Denary, Hex conversion ☐ Two's complement representation ☐ BCD encoding ☐ ASCII vs Unicode ☐ Bitmap calculations (file size, resolution, colour depth) ☐ Vector vs Bitmap graphics ☐ Sound digitization (sampling rate, resolution) ☐ Lossless vs Lossy compression

Communication

☐ LAN vs WAN characteristics ☐ Client-server vs P2P models ☐ Network topologies (Bus, Star, Mesh, Hybrid) ☐ Transmission media (copper, fibre, wireless) ☐ IP addressing (IPv4, IPv6) ☐ DNS function ☐ Cloud computing

Hardware

☐ Computer system components ☐ Input/output devices ☐ RAM vs ROM ☐ SRAM vs DRAM ☐ Storage devices ☐ Embedded systems

Processor Fundamentals

☐ Von Neumann architecture ☐ Registers and their functions ☐ Fetch-Execute cycle ☐ Assembly language addressing modes ☐ Bit manipulation (shifts, masking)

System Software

☐ OS functions ☐ Memory, file, process management ☐ Compiler vs Interpreter ☐ Utility software

Security

☐ Threats (malware, hacking, phishing, pharming) ☐ Security measures (firewall, encryption, authentication) ☐ Data validation methods ☐ Data verification (parity, checksum)

Ethics

☐ Professional ethics ☐ Software licensing types ☐ AI impacts

Databases

☐ Database vs file-based systems ☐ Relational database terminology ☐ Normalization (1NF, 2NF, 3NF) ☐ SQL basics (DDL, DML)

Algorithms

☐ Computational thinking (abstraction, decomposition) ☐ Pseudocode writing ☐ Search algorithms (linear, binary) ☐ Sort algorithms (bubble, insertion)

Data Structures

☐ Primitive data types ☐ Records ☐ Arrays (1D, 2D) ☐ Stacks, Queues, Linked Lists

Programming

☐ Variables and constants ☐ Selection (IF, CASE) ☐ Iteration (FOR, WHILE, REPEAT) ☐ Procedures and functions ☐ Parameter passing

Software Development

☐ Development lifecycle ☐ Testing methods and data ☐ Maintenance types

