

THE INSTITUTE OF COMMERCIAL MANAGEMENT

SUBJECT SYLLABUS



**Information Processing**

## Overview

This module is designed to assess candidates on their understanding of the use of computers in the world today. A knowledge is expected beyond the use of a stand-alone microcomputer including mainframes and networked computers.

Candidates will be expected to be precise in their use of technical words. In particular, care should be taken in distinguishing between:

- i. record and file
- ii. data, program and parameter information
- iii. input, storage and output devices.

## Examination Paper

Part A - Compulsory short questions 40%

Part B - Choose 3 from 5 questions 60%

## Content

### Introduction:

Distinction Between Hardware & Software

Distinction Between Data, Program & Parameter

Overview of the Range of Computers in Current Use - Mainframe, Minicomputer, Microcomputer, Portable/Laptops, Hand-Held

Brief Review of Latest Developments - eg. Multi-Media, Internet, World-Wide-Web

### Types of Software:

System Software - Operating Systems, Different Types, Facilities Offered; Utility Programs; Translators; Disc Software

Application Software, Review, Two Case Studies Considering the Use of Software in Different Businesses, eg. Estate Agent, Insurance Company

### Hardware:

Component Parts of the CPU - ALU, Control Unit

Main Storage & Types of Memory

Overview of the Fetch Execute Cycle: Registers Used - PC, MAR, MDR, CIR; Bus Structure; How the Registers & Buses Are Used in the Fetching & Executing of Input, Arithmetic & Branching Commands

Introduction to Networking - Difference Between LAN & WAN, File & Print Servers, Message Switching, Parity Checking

### Data Capture:

Select the Best Method for a Given Application - Criteria for Choosing the Best Data Capture Method

Input Devices - Brief Outline of How They Work; Media Used; Applications for Which They Are Most Suited (Candidates Should at Least Know About the Operation of: Optical Character Readers; Mark Sense Readers; Magnetic Ink Character Readers; Bar Code Readers; Text

Scanners/Image Grabbers; Keyboards - Standard & Concept; Magnetic Stripe Readers; Voice Input Devices; Touch Screens - Outdated Input Media Such as Punched Cards Should be Avoided)

Differences Between Data Capture Methods Relating to - Cost; Speed; Ease of Use

Input Forms (Paper & Screen)

### Data Checking:

Definitions of Validation, Verification

Types of Validation Possible, Check Digit Systems

Identifying the Validation for Given Data Input

**Data Output:**

Types of Output - Tables, Reports, Lists, Invoices, Statistics etc.

Output Devices:

Range of Printers - Differences in Cost, Speed, Features; Plotters; Screen Display - Text & Graphics; COM

Differences Between Output Methods Related to Cost, Speed & Ease of Use - Media in Use

**Backing Storage:**

Its Role in the Computer System

Typical Uses of Data Files

Definitions of Database, File, Record, Field, Cylinder, Track, Sector, Inter-Block Gap, Header/Trailer Labels, Parity Horizontal & Longitudinal, Master File, Transaction File

Backing Storage Devices Used on Different Types of Computers: Tape; Range of Disc Systems - Mainframe & Microcomputer; Optical (Advantages & Limitations of Each)

Media - How Data is Physically Stored on Storage Media

File Organisation Defined as the Way in Which Records are Stored Within a File Using:

Serial; Sequential; Indexed Sequential - Block & Cylinder Indexes; Random - Hashing Algorithms

File Access Methods: Distinction Between Organisation & Access; Accessing a Record from File Organised by the Four Methods; Adding a Record to a File Organised by the Four Methods; Deleting a Record from a File Organised by the Four Methods

Selecting Appropriate Methods of Organisation & Access for a Given Application

Master File Update: for Sequential Files (by Copying); for Direct Access Files (by Overlay)

**Security:**

Areas of Concern:

Accidental; Deliberate (Relating to Data, Software & Hardware)

Brief Survey of Safeguards to Overcome Data Loss & Hardware Malfunction

**Processing Methods:**

Characteristics of Batch Processing - Batch Total - Hash Total

Distinction Between Online & Real-Time Processing

Specify Suitable Method of Processing for a Given Application