

OLLSCOIL NA hÉIREANN, GAILLIMH

National University of Ireland, Galway

SUMMER EXAMINATION 2000

HIGHER DIPLOMA IN SYSTEMS ANALYSIS
(BUSINESS SYSTEMS DEVELOPMENT)

SYSTEMS ANALYSIS AND DESIGN TECHNIQUES
(MS 861)

Professor C. O'Callaghan

Professor J.F. Collins

Mr. C. J. Barry

Mr. S. Duignan

Time allowed: **THREE** hours

Candidates are required to answer **FOUR** questions

All questions carry **EQUAL** marks

1. "Systems analysts are increasingly relying on methodologies and techniques to assist the process of systems development and ultimately to achieve improved systems quality and productivity". Discuss this statement and indicate how the role of analysts may have changed in recent years.

(25 Marks)

2. Describe the activity of network modelling. In your answer differentiate between logical and physical network modelling, explain location connectivity diagrams, and illustrate how it is synchronised with data and process modelling.

(25 Marks)

3. Draw a systems flowchart to describe the procedure by which member orders are processed in TLK Ltd.

For the New member orders arrive in the order entry department each day from 8.00am to 5.00pm. Staff stack the orders in batches of 250 in preparation for order entry. Data entry staff first key member orders onto magnetic tape, a batch at a time. After the data entry of each batch, a batch control slip is issued by the system. An edit program that validates orders then checks the member order file. Those valid orders are written to a valid member orders file (on tape), and invalid orders are written to a member order error report. Order entry staff then manually correct the original orders that have errors. These are then stacked with new orders in batches and processed in the same manner. The valid member orders are then sorted by member number and forwarded for member order processing.

Sorted member orders are processed in the following manner. The old member order file is loaded along with the inventory file, both on magnetic disk. If particular items are not in stock they are placed in a magnetic disk backorder file and a backorder notice and non-stocked product details report are printed. The orders file is checked in case there are previous orders from the same member. A request for payment is automatically printed. An "orders to be filled" report is issued along with a printed member updates report. A member orders register is also printed as a hard copy reference of new members. Staff compare these output documents with the batch control slip for each batch. The reports will only be released if control totals match. The distribution of reports is as follows:

- Member updates are sent to Membership Staff
- Orders to be filled are sent to the Warehouse
- Request for payment are sent to Order-entry staff
- Backorder notice are sent to Order-entry staff
- Non-stocked product details are sent to the Purchasing Department
- Member orders register are sent to the Order-entry Manager

(25 Marks)

4. Describe the activities of the three phases that make up systems design; the Configuration Phase, the Procurement Phase, and the Design & Integration Phase.

(25 Marks)

5. Discuss the principles and guidelines for input and output design in systems development.

(25 Marks)

6. For the purposes of determining the amount subject to tax on the acquisition, by gift or inheritance, under the provision of Capital Acquisitions Tax legislation, consider the

following:

The acquisition is valued at market value.

If the acquisition is a gift, a £500 gift allowance is deducted from the market value and a 25% reduction in the final tax liability applies.

If there are any incumbrances on the acquisition (such as a mortgage on a house) then these are fully deductible before tax.

Thus: *Incumbrance Free Value = Market Value - Incumbrances.*

The acquisition is exempt from tax up to a certain threshold depending on the relationship between the donor and the donee. If the acquisition is from a Spouse then it is exempt from Capital Acquisitions Tax. If the acquisition is from a Parent the threshold is £188,400, the balance being taxable. If the acquisition is from an Uncle or Aunt or Niece or Nephew the threshold is £25,120 the balance being taxable (subject to gift allowances). If the acquisition is from any other person the threshold is £12,560, the balance being taxable (subject to gift allowances).

If the donor dies within 2 years of the acquisition, the 25% allowance is clawed back.

The amount taxable is subject to the following rates of tax:

First £10,000 @ 20%
Next £30,000 @ 30%
Balance @ 40%

Write a decision table to formulate the logic required for a program specification.

(25 Marks)