

2910319 Decision support and executive information systems

Examination paper: Zone B

Time allowed: two hours and fifteen minutes

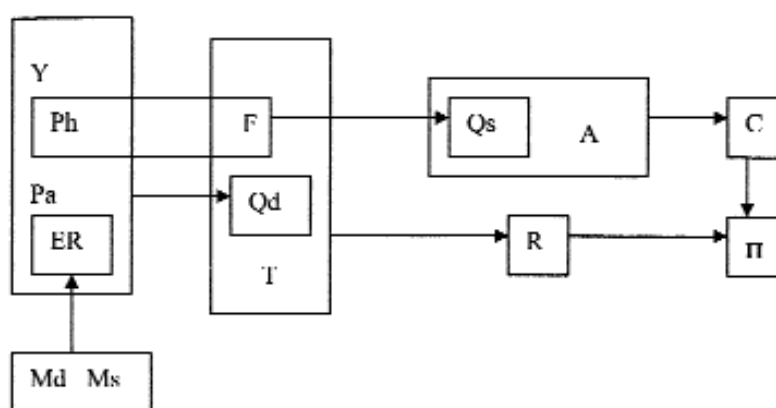
There are **five** questions on this paper.

Do not attempt more than **three** questions. All questions carry equal marks and full marks can be obtained for complete answers to **three** questions.

A hand held calculator may be used when answering questions on this paper but it must not be pre-programmed or able to display graphics, text or algebraic equations. The make and type of machine must be stated clearly on the front cover of the answer book.

Candidates are advised that their answers to all questions will be greatly strengthened by the citing of examples either of their personal experience or from written sources. Full referencing of sources is not necessary; an indication of the nature of the source is all that is required.

- Most large supermarket chains in the UK provide a home delivery service to customers who order goods on-line.
Describe the basic architecture of a decision support system (DSS) and explain how it may contribute to making home deliveries more efficient.
[25]
- The following diagram is a MLTAGRAPH incorporating six separate models. It is used by a London Hotel Booking agency to provide rooms for visiting Americans and to assess their net profit.



- (a) You are required to deconstruct this diagram into the 6 separate models in the form,
 $Y = f(X_1, X_2, \dots, X_n)$

where,

Y = average customer income,
 Pa = transatlantic air fare,
 F = booking agency fee,
 T = government taxation,
 Π = net profit

Ph = average price of a hotel room,
 Ms = supply of money,
 Qd = demand for hotel rooms,
 Qs = supply of hotel rooms,
 A = administrative costs per room

ER = exchange rate
 Md = demand for money
 R = net revenue
 C = total costs

3. A national book wholesaler supplies books to bookstores throughout the country. Maximising sales revenue is a key performance target for the management team. The company maintains a simple transactional file incorporating the following data.

<u>Date</u>	<u>Order number</u>	<u>Customer reference number</u>	<u>ISBN reference*</u>
<u>Quantity ordered</u>	<u>Price of book</u>	<u>Invoice reference</u>	

(* the ISBN reference is unique to each book and identifies the author, title, edition, date of publication and publisher.)

You are required to suggest ways in which this data can be re-organised into a multidimensional database model with the focus being on "Sales revenue".

Choose whatever dimensions you think are appropriate and suggest any new data that you think might help the firm increase sales revenue.

What sorts of questions could the database answer that would be helpful to management?

[25]

4. Compare and contrast the different functions of a Management Information System (MIS) and an Executive Information System (EIS).

Illustrate your answer with reference to a hypothetical multinational company dealing in oil exploration and production.

[25]

5. A large firm specialises in selling and installing UPVC double glazed windows. It employs over 30 travelling salesmen throughout the country. This makes it difficult for head office to arrange joint meetings with the salesmen that are convenient for all the participants. As a system analyst you are required to argue the case for a Group Decision Support System (GDSS) to alleviate this problem. Discuss both the technical and software options.

[25]