THIS PAPER IS NOT TO BE REMOVED FROM THE EXAMINATION HALLS

UNIVERSITY OF LONDON **CO3319 ZA**

BSc Examination

COMPUTING AND INFORMATION SYSTEMS AND CREATIVE COMPUTING

Decision Support and Executive Information Systems

Tuesday 6 May 2014 : 10.00 – 12.15

Duration: 2 hours 15 minutes

There are **FIVE** questions on this paper. Candidates should answer **THREE** questions. All questions carry equal marks and full marks can be obtained for complete answers to **THREE** questions. The marks for each part of a question are indicated at the end of the part in [.] brackets.

Only your first **THREE** answers, in the order that they appear in your answer book, will be marked.

There are 75 marks available on this paper.

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.

Question 1
The United Kingdom (UK) has just experienced some of the worst flooding in its history. The Environmental Agency has an information system that merely gives descriptive data such as river levels, weather forecasts, number of flood barriers in existence, and the number of people and properties at risk.

Outline the arguments you would use to persuade the Environmental Agency to adopt a decision support system (DSS) to aid in flood prevention. Discuss any counter arguments senior management might employ to reject your proposal.

[25 marks]

Question 2
The National Health Service in the UK has just created a centralised database. Eventually this database will contain the medical records of all UK citizens and these will be made available to clinicians and authorised researchers.

Discuss the merits of designing this database in '**multidimensional**' form as opposed to a '**relational**' one. Illustrate your answer with practical examples from the given context.

[25 marks]

Question 3
a) Compare and contrast the **'Nominal Group Technique'** and the **'Delphi Method'** as processes for collective decision-making.

[12 marks]

b) How might computerised support help in the decision-making process? Illustrate your answer with a practical example based on the desire of a political party to counter falling party membership.

[13 marks]

Question 4
A large furniture company in the United Kingdom operates 15 retail outlets in total, spread across the capital cities of 15 different foreign countries. You are a systems analyst employed to persuade the company to install a completely new Executive Information System (EIS). Outline the arguments you would use in discussing this option including the limitations that might be faced in its implementation. Illustrate your answer with examples, given the nature of this company's business.

[25 marks]

Question 5

The following set of equations represent a market model for a particular product.

Qd	= a + bP + cYd + dW	(demand sector)
Qs	= eP + fP(t-1) + gP(t-2)	(supply sector)
Yd	= h + i(Y - T)	(disposable income)
W	= jW(t-1) + kI	(wealth sector)

Equilibrium price is determined when Qd = Qs.

where,

Qd = consumer demand.
Qs = market supply
Y = gross consumer income
Yd = consumer disposable income
P = market price of product
P(t-1) = market price lagged by one time period
P(t-2) = market price lagged by two time periods
W = current consumer wealth
I = current interest rate.
W(t-1) = wealth lagged by one time period
T = total income tax

a,b,c,d,e,f,g,h,i,j, and k are fixed parameters.

a) You are required to draw a **metagraph** of the above five models according to the principles laid down by Robert Blanning. Some marks will be awarded for neatness and clarity.

[15 marks]

b) Discuss the advantages of metagraphs as a modelling device and illustrate your arguments by using the metagraph you drew for part a) above.

[10 marks]

END OF PAPER