DUBLIN INSTITUTE OF TECHNOLOGY

DT211C BSc. (Honours) Degree in Computer Science (Infrastructure)

Year 4

SUMMER EXAMINATIONS 2016/2017

ENTERPRISE SYSTEMS INFRASTRUCTURE AND ARCHITECTURE [CMPU4025]

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TUESDAY 9TH MAY 9.30 A.M. – 11.30 A.M.

TWO HOURS

ATTEMPT QUESTION ONE AND ANY TWO FROM THE REMAINING FOUR QUESTIONS.

QUESTION 1 IS WORTH 40 MARKS.

THE REMAINING QUESTIONS ARE WORTH 30 MARKS EACH.

1 **Answer *part a* or *part b***

(a) Business decisions integrate an organisational data warehouse with decision making information systems to provide valuable information to senior planners in an organisation.

i. Explain using suitable examples, how a data warehouse is implemented using a star schema. **(10 marks)**

ii. Discuss, using suitable examples how an online analytical processing application can utilise the data warehouse and its core capabilities to help organisations formulate strategies to achieve their long term objectives. **(30 marks)**

Or

(b) In an every evolving business environment organisations need to utilise the full potential of I.T. systems to help provide valuable information. The cornerstone of a good decision making information system is a data warehouse.

i. Explain using suitable examples, how a data warehouse is implemented using a star schema. **(10 marks)**

ii. Discuss how data mining can be used in conjunction with a data warehouse to facilitate the strategic formulation process. **(30 marks)**

2

(a) Describe, using suitable examples, how to carry out a SWOT analysis. **(8 marks)**

(b) The Boston matrix (BCG)/Internal External matrix (IE) are models used to help with the formulation of strategies. Describe how any one of these matrices could be used to derive a set of organisational strategies. **(6 marks)**

(c) Explain how the Quantitative Strategic Planning Matrix (QSPM) is used to choose the most appropriate strategy. **(8 marks)**

(d) Compare and contrast the purpose and limitations of the SWOT analysis and either BCG or the IE matrices. **(8 marks)**

3

(a) *Three* important characteristics of distributed databases are: *Fragmentation, replication and allocation.*

i. Explain, using a suitable example, what is meant by each term.
(6 marks)

ii. Explain how one would decide when to implement a replicated distributed database or a fragment distributed database.
(8 marks)

iii. Explain the relationship between the principles of locality and each of the above three characteristics of distributed databases.
(6 marks)

(b) Distributed Query optimisation can significantly impede the efficiency of decision making within large distributed organisations. Explain, using suitable examples, what you understand by this statement.
(10 marks)

4

(a) A decision support system (DSS) uses its analytical capabilities to solve semi-structured and unstructured problems:

i. What is the difference between both of these types of problems?
(5 marks)

ii. Explain, using suitable examples, any *three* of the following DSS analytical tools used to solve *semi-structured* problems: what-if analysis; sensitivity analysis; goal seeking analysis; optimisation analysis; and intelligent agents. **(15 marks)**

(b) An Executive support system (E.S.S.) is another platform used by senior management to facilitate the decision making process of senior management. Compare and contrast both the DSS and the ESS decision making platforms.
(10 marks)

5 .

(a) What are the *three* phases involved in Customer Relationship Management (CRM)? **(6 marks)**

(b) Discuss how OLAP or Data Mining, two analytical technologies of C.R.M. systems, can improve the efficiency and effectiveness of *three* phases of C.R.M. **(10 marks)**

(c) Today numerous devices such as smart phones and search engines can be used to monitor our internet activity and gather personal information, such as what we buy on line, in order to collect data that will be used in C.R.M. software systems. While this information gathering can improve convenience it also can be quite intrusive.

i. Describe three of the steps in the 5 step ethical analysis process. **(6 marks)**

ii. Discuss if, in your opinion, new technologies that request access to personal information such as locations in return for some convenience is ethical? **(8 marks)**