University Examinations 2013/2014

THIRD YEAR, SECOND SEMESTER EXAMINATION FOR THE DEGREE IN BACHELOR OF INFORMATION TECHNOLOGY

ICS 2400 – TRANSATION PROCESSING SYSTEMS

DATE: APRIL 2014   **TIME: 2HOURS**

INSTRUCTIONS: *Answer question* **one** *and any other* **two** *questions*

QUESTION ONE – 30 MARKS

(a) With the use of suitable examples, give the meaning of the following:

(i)	A transaction	(2marks)
(ii)	A system	(2marks)
(iii)	A process	(2marks)
(iv)	Data	(2marks)
(v)	Information	(2marks)

(b) Explain the various transaction states using a diagram.   (4marks)

(c) What is an organization?   (2marks)

(d) Discuss the two main characteristics of an organization which determine the nature of information systems in an organization.   (4marks)

(e) Give a brief history of the evolution of transaction processing systems.   (4marks)

(f) Explain the usage of the term ROLLBACK.   (2marks)

(g) Discuss the various information systems within an organization.   (4marks)

QUESTION TWO –20 MARKS

(a) Identify and explain the ACID properties of Transaction Processing System.   (4 marks)

(b) Where would a Transaction Processing System be located?   (2 marks)

(c) Explain the difference between the following:
    (i)   A Database verses a DBMS   (2 marks)
    (ii)   Data integrity verses Data Security   (2 marks)
    (iii)   Physical access verses logical access   (2 marks)
(d) Distinguish between dumb terminal and stand alone computers.   (2 marks)

(e) What is a distributed system?   (2 marks)

(f) List and explain the key components of a transaction processing system.   (4 marks)

QUESTION THREE – 20MARKS

(a) Illustrate and explain the following transaction processing system models:
    Single user system   (2 marks)
    Centralised Multi-user system.   (2 marks)
    Two-tiered model   (2 marks)
    Three-tiered model   (2 marks)

(b) Explain why it is not prudent to allow users to access a database directly but via SQL statements by though application programs.   (4 marks)

(c) Explain the importance of the following:
    (i) Application servers   (4 marks)
    (ii) Transaction servers   (4 marks)

QUESTION FOUR – 20MARKS

(a) Discuss the background of client/server networks   (2 marks)

(b) With the use of a table, list the server services against client requests during transaction processing.   (2 marks)

(c) Illustrate and explain the number of sessions available for a network having three servers and nine clients for:
    The two-tiered model   (2 marks)
    The three-tiered model   (2 marks)

(d) Discuss queued verses direct transaction processing. (2 marks)

(e) With the use of examples elaborate on the following:
    (i) Homogeneous Transaction Processing Systems (2 marks)
    (ii) Heterogeneous Transaction Processing Systems (2 marks)
    (iii)The Transaction Manager (2 marks)
    (iv)A Transactions Processing Monitor (2 marks)

(f) Illustrate the layered architecture of a Transaction Processing System. (2 marks)

QUESTION FIVE – 20MARKS

(a) Discuss the significance of Remote Procedure Calls in an Transaction Processing System.
(4 marks)

(b) Distinguish between Server Stub verses Client Stub functions. (4 marks)

(c) Explain how transactions processing works over the internet. (4 marks)

(d) Illustrate the architecture of a Transactions Processing System over the internet. (4 marks)

(e) Outline how a RAID system works. (4 marks)