



UNIVERSITY OF GHANA

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B.SC INFORMATION TECHNOLOGY, SECOND SEMESTER EXAMINATIONS:

2016/2017

CSIT 418: DATABASE AND DISTRIBUTED SYSTEM SECURITY PRINCIPLES (3 CREDITS)

TIME ALLOWED:

THREE (3) HOURS

INSTRUCTION:

Section A: Answer ALL Questions in the Answer Booklet

Section B: Answer any THREE (3) Questions from this section

SECTION A (40 Marks)

Answer all questions in this section in the answer booklet.

A1.

- a) Explain the concept of Distributed Database System? **[4 Marks]**
- b) List and explain three advantages of a distributed database management system?
[6 Marks]
- c) In a distributed data processing, three components are distributed. Discuss these

components

[6 Marks]

A1.

a) Explain data directory used in a distributed database System? **[4 Marks]**

b) Discuss the effect of location and replication on data directory management?

[6 Marks]

A1.

a) There are two major views in a distributed DBMS that solves the issue of making view materialization efficient. Discuss these two views? **[6 Marks]**

b) Discuss Fragmentation used in DDBMS and explain two fundamental strategies used in fragmentation. **[8 Marks]**

SECTION B (60 Marks)

Answer Any Other THREE (3) Questions from this Section

B1.

- a) Define a transaction used in DDBMS? **[4 Marks]**
- b) When do we say a database is in a consistent state? **[2 Marks]**
- c) Explain the types of transactions associated with a distributed database management system? **[6 Marks]**
- d) Explain the properties of a transaction? **[6 Marks]**

B1.

- a) What is Replication in DDBMS? **[2 Marks]**
- b) In a database integration process, there are three major schema generation processes used. Explain these schema processes. **[9 Marks]**
- c) There are various design issues in building a distributed DBMS. Explain three of these issues? **[9 Marks]**
- d) Explain Allocation used in DDBMS? **[2 Marks]**

B1.

- a) Explain the concept of Data Security? **[4 Marks]**
- b) Explain the two major aspects of data security as used in DDBMS? **[6 Marks]**
- c) There are two main approaches to database access control. Explain these access controls stating the KEY difference between them? **[8 Marks]**
- d) Differentiate between Schema matching and Adaptation **[2 Marks]**

B1.

- a) Explain the concept of concurrency control? **[4 Marks]**
- b) Explain deadlock management used in distributed DBMS? **[4 Marks]**
- c) There are three known methods for handling deadlocks? Explain these methods?
[6 Marks]
- d) Explain the three main solutions used in managing authentication? **[6 Marks]**