GRETSA UNIVERSITY - THIKA

UNIVERSITY EXAMINATIONS
MAY - AUGUST 2018 SEMESTER

BACHELOR OF SCIENCE IN COMPUTER SCIENCE

COURSE CODE: BSCS 207

COURSE TITLE: ADVANCED DATABASE SYSTEMS

DATE:6 AUGUST 2018   **TIME: 3.00 PM – 6.00 PM**

INSTRUCTIONS TO CANDIDATES

1. SECTION A IS **COMPULSORY.**
2. SECTION B: ANSWER ANY OTHER **THREE** QUESTIONS.
3. **DO NOT** WRITE ANYTHING ON THIS QUESTION PAPER AS IT WILL BE AN EXAM IRREGULARITY.
4. ALL ROUGH WORK SHOULD BE AT THE BACK OF YOUR ANSWER BOOKLET AND CROSSED OUT.

CAUTION: *All exam rooms are under CCTV surveillance during the examination period.*

SECTION A: COMPULSORY

Question One

a) State and explain two benefits of isolation in a database [4 marks]

b) Using relevant examples explain the following problems in a database and provide one possible solution to each of the problems

      i Uncommitted dependency [5 marks]

      ii Lost update problem [5 marks]

      iii. Inconsistent analysis problem. [5 marks]

c) Define the term data model [2 marks]

d) State and explain any three categories of data models [6 marks]

e) Outline any five benefits of the Traditional Two-Tier Client–Server Architecture

      [5 marks]

f) Using a well labeled diagram explain four high-level database modules that handle transactions, concurrency control, and recovery [8 marks]

SECTION B: ANSWER ANY THREE QUESTIONS

Question Two

a) Differentiate between serial schedule and non- serial schedule [4 marks]

b) Discuss any five benefits of distributed database over centralized databases [10marks]

c) Outline any three differences between data administration and database administration

      [6 marks]

Question Three

a) Analyze the security features of three database management systems and discuss the similarities and differences between them. [9 marks]

b) Describe the following key technologies that can form part of a Business Intelligence implementation

      i. Data warehousing [2 marks]

      ii. Online analytical processing (OLAP) [2 marks]

      iii. Data mining [2 marks]

c) Outline any five challenges with data warehousing [5 marks]

Question Four

a) State and explain any five data mining operations and associated techniques   [5 marks]

b) Explain any five benefits of parallel database architectures   [5 marks]

c) Discuss any five different issues related to database security   [10 marks]

Question Five

a) Outline any three components of a data dictionary   [3 marks]

b) Discuss the importance of Sensitivity analysis in data mining   [5 marks]

c) You are a database designer who has been called in to investigate how a database system might be developed. Your initial study can be divided into the following four categories. Describe what each of these involves.

   i.   Analyze the company situation   [3 marks]

  ii.   Define problems and constraints   [3 marks]

 iii.   Define objectives   [3 marks]

  iv.   Define scope and boundaries   [3 marks]