



**MASENO UNIVERSITY**  
**UNIVERSITY EXAMINATIONS 2016/2017**

**THIRD YEAR SECOND SEMESTER EXAMINATIONS FOR THE  
DEGREE OF BACHELOR OF SCIENCE IN INFORMATION  
TECHNOLOGY**

**MAIN CAMPUS**

**CIT 303: ADVANCED DATABASE SYSTEMS**

Date: 12<sup>th</sup> June, 2017

Time: 3.30 - 6.30 pm

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**INSTRUCTIONS:**

- Answer ALL questions in SECTION A and any other THREE from SECTION B
- Write your registration number on all sheets of the answer book used.
- Use a NEW PAGE FOR EVERY QUESTION attempted, and indicate number on the space provided on the page of the answer sheet.
- Mobile phones and PDAs are NOT allowed in the examination room.

**Instructions:** There are **TWELVE** (12) questions in this paper. Answer **ALL** questions in **PART A**, and any **THREE** (3) questions in **PART B**.

**TIME: 3 HOURS**

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**PART A: ( 40 )**

**QUESTIONS**

1. What is meant by integrity constraints? (4 Marks)
2. Differentiate between authentication and authorization. (6 Marks)
3. Why are concurrency control techniques needed in DBMS? (6 Marks)
4. What is parallel query? (6 Marks)
5. Define data independence in a distributed database management system. (6 Marks)
6. Describe integrity and security control in a database management system. (6 Marks)
7. Highlight the purpose of database normalization. (6 Marks)

**PART B: ( 60 MARKS )**

8. Briefly explain three layers of three-tier client/server architecture DBMS. (20 Marks)
9. Define data replication. State any three advantages and disadvantages of replicating data in distributed database environment. (20 Marks)
10. What are responsibilities of a DBA? (20 Marks)
11. Highlight any five data types used in Visual Basic programming. (20 Marks)
12.
  - a. What is DDBMS?
  - b. Explain the difference between Primary key and unique key? (20 Marks)

**END**