



MACHAKOS UNIVERSITY

University Examinations for 2019/2020 Academic Year

SCHOOL OF ENGINEERING AND TECHNOLOGY

DEPARTMENT OF COMPUTING AND INFORMATION TECHNOLOGY

THIRD YEAR SPECIAL/SUPPLEMENTARY EXAMINATION FOR

BACHELOR OF SCIENCE (COMPUTER SCIENCE)

SIT301: DATABASE ADMINISTRATION

DATE: 21/1/2021

TIME: 8.30-10.30 AM

INSTRUCTIONS

Answer Question ONE and any other TWO Questions

QUESTION ONE (COMPULSORY)

- a) List four competencies which a database administrator should have to do his work effectively. (4 marks)
- b) Given user Brian and user Ben are transacting and updating record in the same table, with the aid of a diagram, illustrate a lost update as a result of an inconsistent read. (12 marks)
- c) As an organization grows, there is need to establish a data warehouse. State **four** key roles of a data ware house administrator. (4 marks)
- d) In a busy network operation center, there have been several cases of security breach. You have been hired as a consultant to help settle the matter. Discuss the approaches you would use to seal the loopholes. (10 marks)

QUESTION TWO

- a) Discuss four database failure responses under the following circumstances. (8 marks)
 - i. Aborted transactions
 - ii. Incorrect data
 - iii. System failure (database intact)
 - iv. Database destruction

- b) Discuss the following terms concurrency control and Serialization as applied database management (4 marks)
- c) Highlight **four** levels of locks. (4 marks)
- d) Differentiate shared lock and an exclusive lock. (4 marks)

QUESTION THREE

- a) Explain five back up facilities in a database management system. (10 marks)
 - b) Discuss the journalizing aspect of a database system where it creates an audit trail. (10 marks)
- (4 marks)

QUESTION FOUR

- a) List four causes of flawed user authentication. (8 marks)
- b) Propose two methods to solve user authentication flaws in database management systems. (4 marks)
- c) List four database system actions which can be assigned to a subject to execute on an object. (4 marks)
- d) List four Mechanisms to facilitate restoration of a database quickly and accurately after loss or damage (2 marks)

QUESTION FIVE

- a) Discuss five key security features which every database management software should have. (10 marks)
- b) Explain the role of the following in integrity control (10 marks)
 - i. Views.
 - ii. Integrity Controls:
 - iii. One type Domain.
 - iv. Assertions.
 - v. Triggers.