



Kirinyaga University

UNIVERSITY EXAMINATION 2018/2019

YEAR IV SEMESTER I EXAMINATION FOR THE DEGREE OF BACHELOR OF  
SCIENCE IN MATHEMATICS & COMPUTER SCIENCE

**ICS 2404: Advanced Database Management Systems Year Iv Semester I 2018**

**Date:** Friday 7<sup>th</sup> December 2018

**Time:** 11.00am – 1.00pm

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**INSTRUCTIONS**

*Answer question **one** (compulsory) and any other two questions*

**Question One**

- a) The architecture of a database system is greatly influenced by the underlying computer system on which it runs, discuss the components of computer architecture that affect it (6 Marks)
- b) With an aid of a diagram explain centralized Architectures (5 Marks)
- c) Explain the processes that form part of the database system in transaction server (6 Marks)
- d) Differentiate the following (8 Marks)
  - (i) OLAT/OLPT
  - (ii) OODBMS/RDBMS
  - (iii) Parallel system/ distributed system
  - (iv) Homogeneous and Heterogeneous Databases
- e) Outline Reasons for creating Data Mart (5 Marks)

**Question Two**

- a) Explain Parallel Database Architectures and illustrate them using a diagram (6 Marks)
- b) Write short notes on SOAP (6 Marks)
- c) Explain anatomy of SOAP message (4 Marks)
- d) Highlight parallel processing system characteristics (4 Marks)

**Question Three**

- a) Differentiate between inter-query and intra-query parallelism (6 Marks)
- b) Disadvantages Pipelined Parallelism (4 Marks)
- c) Explain steps followed when designing parallel applications (8 Marks)
- d) Explain Types of Heterogeneous Databases (2 Marks)

**Question Four**

- a) Explain three types of Distributed Database Architecture (6 Marks)
- b) Disadvantage of data replication (8 Marks)
- c) Explain two different approaches for designing an object-oriented database (6 Marks)

**Question Five**

- a) Advantages of OODBMS (6 Marks)
- b) Explain Data Warehouse Architecture (6 Marks)
- c) Differentiate Between XML & HTML (8 Marks)