

FEDERAL UNIVERSITY OF TECHNOLOGY, MINNA
SCHOOL OF INFORMATION AND COMMUNICATION TECHNOLOGY
DEPARTMENT OF INFORMATION AND MEDIA TECHNOLOGY
CONTINUOUS ASSESSMENT 2015/2016 ACADEMIC SESSION

Course Title: Database Concept & Systems

Credit Units: 2

Course Code: CIT314

Time Allowed: 2 Hours

Instruction: Answer all Questions

1.
 - a. Explain how a DBMS implements atomicity and durability properties in ensuring database integrity. (10 marks)
 - b. What are the disadvantages of : i. serial transactions processing and ii. Concurrent transactions processing. (2 marks)
 - c. What are the merits of concurrent transactions processing. (3 marks)
2.
 - a. Explain the concept of *Conflict serializability*. (5 marks)
 - b. How can the conflict serializability be averted when different schedules are running? (3 marks)
 - c. Explain the concept of Cascading rollback, illustrate with a figure as appropriate. (2 marks)
 - d. Write on lock-based protocol and the lock-mode compatibility. (5 marks)
3.
 - a) Briefly explain the following:
 - i) Deadlock ii) Starvation iii) Concurrent transactions
 - iv) A transaction (8 marks)
 - b) List the ACID properties of database transactions and briefly explain them. (7 marks)
4. What is a lock on a transaction meant for? (1 mark)
 - a. Explain Shared lock and Exclusive lock. (2 marks)

- b. Briefly explain with a table to illustrate the compatibility of the two types of locks in 3a) above. (2 marks)
 - c) Illustrate the Transaction states with a diagram and brief notes.(2 marks)
- 5.
- a) Define decision support system and data warehousing. (2 marks)
 - b) Explain Centralized and distributed database system. (2 marks)
 - c) Databases can store variety of information, explain the types of data that the following databases are likely to store:
 - i) Spatial database
 - ii) Multimedia database
 - iii) Mobile database (3 marks)