

Two hours - online

EXAM PAPER MUST NOT BE REMOVED FROM THE EXAM ROOM

**UNIVERSITY OF MANCHESTER
DEPARTMENT OF COMPUTER SCIENCE**

Fundamentals of Databases

Date: Friday 24th January 2020

Time: 09:45 - 11:45

**This is an online examination. Please answer ALL Questions.
The examination is worth a total of 60 marks
The exam contains MULTIPLE CHOICE QUESTIONS**

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This is a CLOSED book examination

The use of electronic calculators is NOT permitted

Sections A and B contain restricted
multiple choice questions (MCQs)
and are NOT published

Section C

Answer ALL of the questions

1. What is Logical Data Modelling? (2 marks)

2. Write an SQL query which represents the following. (2 marks)

$$\sigma (Client \times Order)$$

3. What is relational algebra? (3 marks)

4. What is Step 3 in the Relational Mapping Algorithm used to do? State the approaches that can be used for this step. (4 marks)

Section D

Answer ALL of the questions

1. Give a definition of a candidate key. (3 marks)
2. Give a definition of an SQL trigger. (2 marks)
3. Why is concurrency control important? (2 marks)
4. What are the three main types of file organisation? (3 marks)
5. What is the purpose of creating indexes? (2 marks)