UNIVERSITY OF WESTMINSTER

School of Computer Science and Engineering

Module: Database Systems

Module Code: 5COSC002W & 5COSC008C

Module Leader: **Francois Roubert**
Date: **08 January 2019**
Start: **10:00**
Time allowed: **1 Hour**

Instructions for Candidates:

You are advised (but not required) to spend the first ten minutes of the examination reading the questions and planning how you will answer those you have selected

This paper contains 3 Questions.

ALL 3 QUESTIONS ARE COMPULSORY, ANSWER ALL QUESTIONS

QUESTION 1 CARRIES 10 MARKS
QUESTION 2 CARRIES 10 MARKS
QUESTION 3 CARRIES 10 MARKS

The examination is marked out of 30 marks (it is worth 30% of the overall module assessment).

THIS PAPER MUST NOT BE TAKEN OUT OF THE EXAMINATION ROOM

DO NOT TURN OVER THIS PAGE
UNTIL THE INVIGILATOR INSTRUCTS YOU TO DO SO

DazzlingTheatre is a London theatre that shows performances of famous musicals all year around. To attend a musical performance, customers need to pre-book their seats for this performance.

DazzlingTheatre is seeking to design and develop a database-driven management system help organise the showing of performances and the booking of seats for these performances.

The Conceptual Entity-Relationship Diagram (ERD) for the performance and booking management system for DazzlingTheatre is shown below (figure 1). Carefully consider this conceptual ERD.

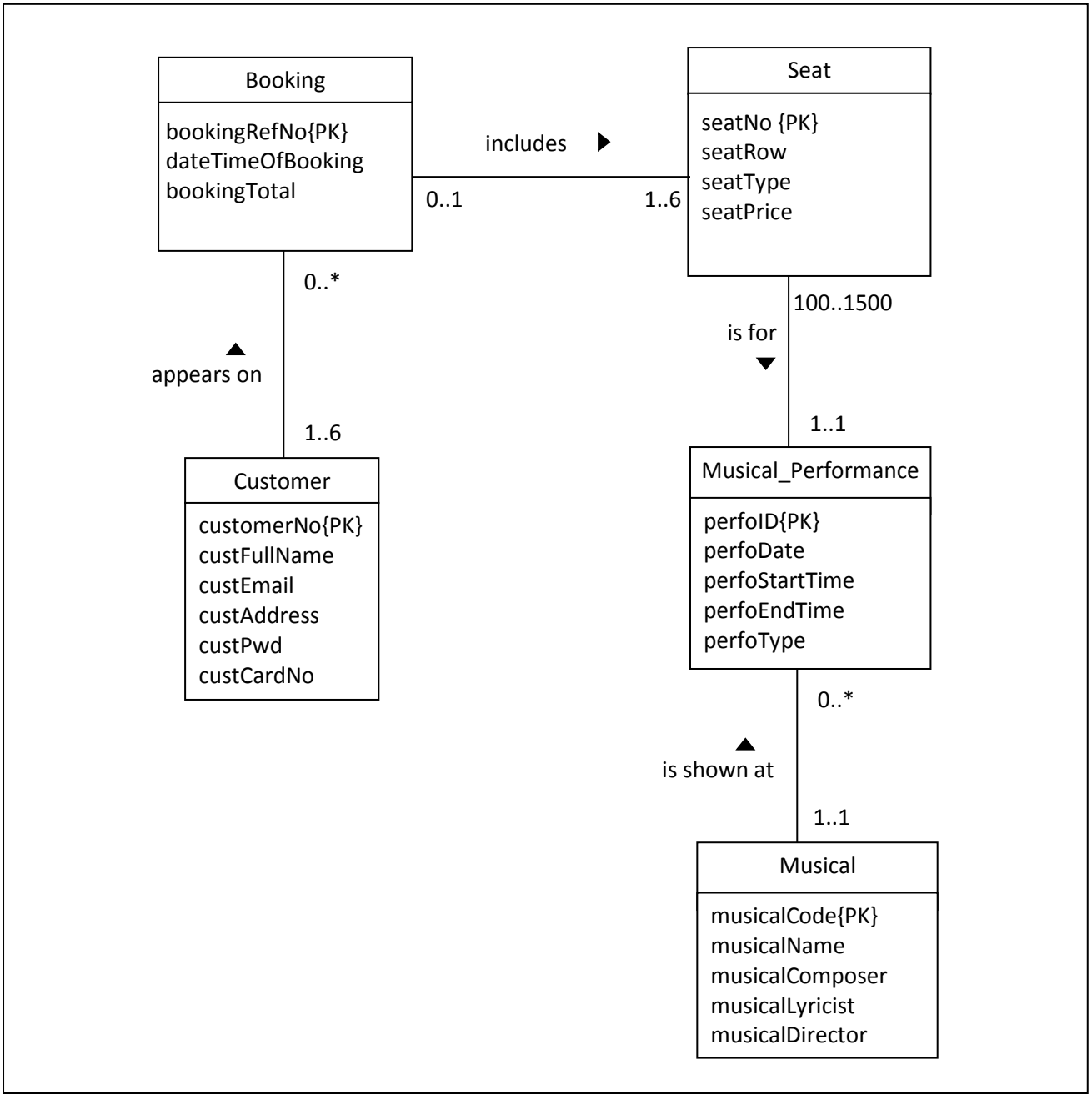

Figure 1: Conceptual ERD for the DazzlingTheatre booking management system

Question 1

(a) Explain in detail the multiplicities of the relationship *'includes'* (between the entities Booking and Seat) by providing 4 meaningful statements. Also provide adequate justifications to support each statement.

[4 Marks]

(b) Briefly explain how you would map the relationship *'includes'* (between the entities Booking and Seat) to a logical ERD. Provide a diagram to support your answer. Make sure you include all the correct elements in your diagram: relationships, multiplicities, attributes, and keys.

[6 Marks]

Question 2

(a) Explain in detail the multiplicities of the relationship *'appears on'* (between the entities Customer and Booking) by providing 4 meaningful statements. Also provide adequate justifications to support each statement.

[4 Marks]

(b) Briefly explain how you would map the relationship *'appears on'* (between the entities Customer and Booking) to a logical ERD. Provide a diagram to support your answer. Make sure you include all the correct elements in your diagram: relationships, multiplicities, attributes, and keys.

[6 Marks]

Question 3

(a) Write a SQL query to display all the musical performance dates, start times, and end times for those performances that are either of type 'Standard' or that took place in 2017.

[5 Marks]

(b) Write a SQL query to display the IDs, the dates, and start times of the performances for the musical called 'Hamilton', but only for those performances that have an ID greater than 105.

[5 Marks]