UNIVERSITY OF WESTMINSTER

SCHOOL OF COMUPTER SCEINCE AND ENGINEERING
TIMED ASSESSMENT SEMESTER 1 2020/21

Module Code: **7BUIS030W**
Module Title: **Data System Concepts and Fundamentals**
Module Leader: **Saumya Reni**

Instructions to Candidates: MOCK TEST

Please read the instructions below before starting the paper

- Module specific information is provided below by the Module Leader
- The Module Leader will be available during the exam release time to respond to any queries via the Discussion Board in the Assessment area of the module's Blackboard site
- As you will have access to resources to complete your assessment any content you use from external source materials will need to be referenced correctly. Whenever you directly quote, paraphrase, summarise, or utilise someone else's ideas or work, you have a responsibility to give due credit to that person. Support can be found at:

  https://www.westminster.ac.uk/current-students/studies/study-skills-and-training/research-skills/referencing-your-work
- This is an individual piece of work so do not collude with others on your answers as this is an academic offence
- Plagiarism detection software will be in use
- Where the University believes that academic misconduct has taken place the University will investigate the case and apply academic penalties as published in Section 10 Academic Misconduct regulations.
- ***Once completed please submit your paper via the Assignment content. In case of problems with submission, you will have TWO opportunities to upload your answers and the last uploaded attempt will be marked. Note that instructions on how to compile and submit your handwritten and/or typed solutions will have been sent to you separately.***
- ***Work submitted after the deadline will not be marked and will automatically be given a mark of zero***

Module Specific Information

This paper has **Four** questions with sub-questions worth 100 marks in total.
Answer **all** questions.
The overall marks awarded for each question are indicated next to the question.
The score of each sub-question is indicated next to the sub-question.
Answers with no working or justification will not gain full marks.
You may use a non-graphical/ nonprogrammable calculator.

Question 1:

1. Match the following **[12 Marks]**

Dictionary		Data Security
Alternate Key		Data Lifecycle
Encryption software		Candidate Key
PIMS		Lossless compression
Operational Maintenance		Lossy Compression
Data Storage		Database
RLE		Data Protection
JPEG		Information System Life cycle
Link table		Row
Record		Logical DB

2. Fill in the blanks from the pool of words below: **[5 Marks]**

{ accurate, fairly, lawful, relevant, significant, up to date, confidentiality, integrity, availability, inaccurate, excessive}

Personal data shall be processed _____ and lawfully and shall be obtained only for specified, _____ purposes. Personal data shall be adequate, _____ and not _____ in relation to the purpose or purposes for which they are processed. Personal data shall be _____ and, where necessary, kept up to date.

Question 2: Regulatory and Compliance Framework **[Total 24 marks]**

i. State any three fundamental principles of data protection. [6 Marks]

ii. Is data protection same as data security? Justify your answer *(If yes, state the similarities ; if no, state the key differences)* [10 Marks]

iii. Describe the significance of data regulations and compliance frameworks. [8 Marks]

Question 3: Data actors and tools **[Total 20 marks]**

i. What are data actors? Provide their names [4 Marks]

ii. A gym engages a local printing company to produce invitations to a special event that they are hosting. The gym gives the printing company the names and addresses of its members from its member database, which the printer uses to address the invitations and envelopes. They gym then sends out these invitations to their members. Identify the data actors, provide justifications and describe their roles. [16 Marks]

Question 4: Data life cycle **[39 overall marks]**

i. Demonstrate using example , the Data redundancy issue in database management. [10 Marks]

ii. The London Cinema MaxVue shows classic movies all year around. To watch a movie, customers need to pre-book their seats. MaxVue is seeking to design and develop a database-driven management system to organise the booking of seats for the movie shows. The Conceptual Entity-Relationship Diagram (ERD) for the booking management system for VueMax is shown below (figure 1). Carefully consider this conceptual ERD.

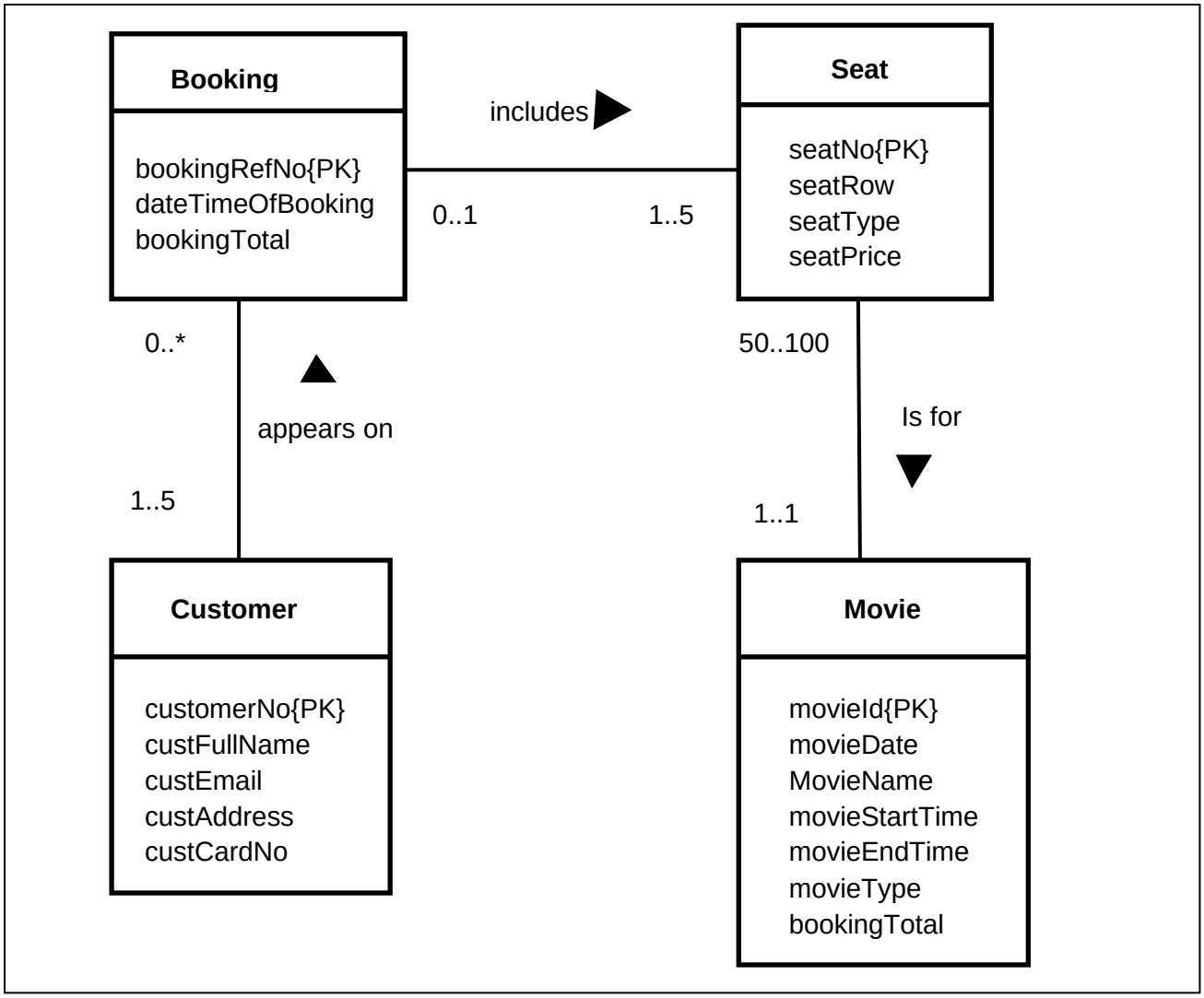

Figure 1

a) State the strong and weak entities in the above ERD in Figure 1 and justify your answer [6 marks]

b) 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. [8 Marks]

c) 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]

d) 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. [9 Marks]

END OF PAPER