



Jahangirnagar University
Department of Computer Science and Engineering
PMSCS Program FINAL Examination SPRING 2021
PMSCS 612: Database Systems

Duration: 1.5 Hours

Full Marks: 30

Answer any THREE (03) of the following questions:

1. (a) Define: i) Transactional information ii) Metadata iii) DBA 3
(b) Describe the relationship between the database and DBMS. 3
(c) Describe the steps in the development of a database system. 4

2. (a) Define: i) DCL ii) DML 2
(b) Explain the following statements: 1+1+3
 i) `mysql>create database movie;` =5
 ii) `mysql>use movie;`
 iii) `mysql>create table person (
 →pid int(10) unsigned not null auto_increment,
 →pname varchar(255) not null default '',
 →pgender enum('M','F') not null default 'M',
 →pdob date not null,
 →primary key (pid)
 →) ENGINE = InnoDB;`
(c) Write the names of relational algebra operations. 3

3. (a) Define: i) ER diagram ii) Transaction 2
(b) What are the four possible cardinality constraints? 4
(c) What is weak entity? Describe three types of relationships (maximum cardinality-wise). 1+3=4

4. (a) Define: i) NoSQL ii) Big data iii) Cloud computing 3
(b) Compare among data warehouse, data mart, and data lake. 3
(c) Explain (*any ONE*): 4
 i) Mapping of an M : N relationship between two entities into a relation schema.
 ii) Second Normal Form (2NF)

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