

Daffodil International University

Department of Computer Science and Engineering

Faculty of Science and Information Technology (FSIT)

Final(Improvement) Examination, Semester: Spring-2017

Course Code: CSE 311 Course Title: Database Management Systems

Section: ALL Course Teacher: ALL

Time: 120 minutes Answer all questions Total Marks: 40

|  |
| --- |
| **Q1:**Consider the following database schema computer products: **10**  Computer(maker,model,category)  Model(num,speed,ram,hd,price)  Maker(name,address,phone)  Where maker indicates the manufacturer of the computer   1. category takes values such as “desktop*”*, “laptop*”*, “server*”*;   Write the following queries using **Relational Algebra**:  a) Find *all* the makers who make *some* laptop(s)  b) Find the phone numbers of *all* the makers who make desktops with speed = 3.2  c) Find the makers who don’t make any desktop, and do make some laptop(s)  d) Find the makers who make all models with speed faster than 1.7.  e) Find all makers who make the most expensive server. |
| **Q2:**Consider the following relational schema for university schema. **10**  Classes(class, type, country, numGuns, bore, displacement)  Ships(name, class, launched)  Battles(name, date) Outcomes(ship, battle, result)  Write the following queries using **SQL:**  a) Find the countries whose ships had the largest number of guns.  b) Find the classes of ships at least one of which was sunk in a battle.  c) Find the names of the ships with a 16-inch bore.  d) Find the battles in which ships of the *Kongo* class participated.  e) Find the names of the ships whose number of guns was the largest for those ships of the same bore. |
|  |

**Q3:**The table shown in Figure lists dentist/patient appointment data. A patient is given an appointment at a specific time and date with a dentist located at a particular surgery. On each day of patient appointments, a dentist is allocated to a specific surgery for that day.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| StaffNo | dentistName | patNO | patName | Appointment date time | Surgery No. |
| S101 | Ehtesham | P100 | Mehedy Hasan | 12/07/16 10.00 | S15 |
|  |  | P105 | Jina Khatun | 12/07/16 12.00 | S15 |
| S102 | Abdur Razzak | P108 | Arshi Begum | 12/07/16 10.00 | S10 |
|  |  | P108 | Arshi Begum | 14/07/16 14.00 | S10 |
| S103 | Shabrina | P105 | Jina Khatun | 14/07/16 17.20 | S15 |
|  |  | P110 | Kamrul Huda | 15/07/16 18.00 | S13 |

Describe and illustrate the process of normalizing the table shown in Figure to **3NF**. State any assumptions you make about the data shown in this table. **10**

**Q4:** Briefly describe deadlock avoidance and prevention mechanism. **7**

Write down the difference between primary key and foreign key with examples **3**