

167181 CAT 1 DATABASE SYSTEMS

Question 1

One bad decision that may arise from a user who is not conversant with its environment is making the data available to everyone in the organisation failing to protect sensitive data from unauthorised users.

The user may fail enforce referential integrity in their database thus compromising the accuracy of the data been displayed by the database.

A user may also fail to enforce validation rules which may cause the end users to input invalid data thus yielding invalid results.

Question b

From the Student's table, the primary key is Sno.

From the Course table, the primary key is CourseId.

From the Enrol table foreign key is CourseId.

From the Enrol table primary key is Sno.

From the Book_Adoption table, the primary key is Book_isbn.

From the Text table foreign key is Book_isbn.

i) The assumption was that each student can be enrolled in many courses in many courses explaining why the courseId in the Enrol table was not made a primary key.

ii) Entity would be achieved by ensuring that all the fields with a primary key have keyed in data.

Referential integrity would ensure that the linked fields in the selected tables have a common data entry.

Domain would be achieved by ensuring the database is organized into relations and attributes that can accept data.

Question 2

i) $\sigma_{(ClientNo, fName, lName) \in Client_{(maxRent > 400)}}$

ii) $\pi_{(ClientNo, fName, lName, maxRent)} Client$

$Client_{(ClientNo, fName, lName)} \bowtie ClientNo = ClientNo(VIEWING)_{(comment \neq null)}$

ClientNo	Fname	lName	Comment
CR56	Aline	Stewar	Too small
CR62	Mary	Treagear	No dining
CR76	John	Kay	Too remote

Question 3

a) Airplane details

Staff details

Technician expertise

Medical exam for each traffic controller

Union membership of all employees

Airport test details

c) The airport details table will contain the plain model attribute what would be linked to the technician details which would also the plain model of expertise. In this relationship, referential integrity would be enforced.

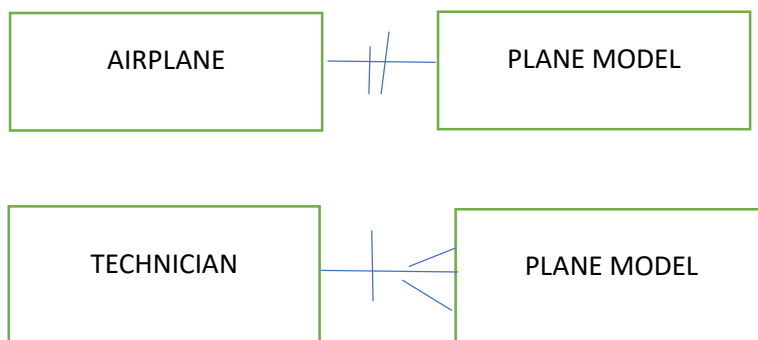
d) The primary key for the Airport details table would be the Registration number.

The primary key for the Staff details table would be the Registration number.

The primary key for the Airport details table would be the ID number.

The primary key for the Airport test details table would be the CAA test number.

c) The airport details table will contain the plain model attribute what would be linked to the technician details which would also the plain model of expertise. In this relationship, referential integrity would be enforced.



e) Assuming that many plans of the same model exist in the airport.

b) One technician can be an expert in many plane models and each plane model has one registration number

