2. Create the tables in the JOHOR_LIBRARY database. Details of each table is given below. Include the constraints when creating the tables.

(1 Mark)

ATTRIBUTE	DATATYPE
book_ID (Primary Key)	VARCHAR2 (5)
title (requires value)	VARCHAR2 (30)

Table 1: Relation BOOK

(1.5 Marks)

ATTRIBUTE	DATATYPE
book_ID (Primary key. References book_ID from Relation BOOK)	VARCHAR2 (5)
author_name (Primary key . Requires value)	VARCHAR2 (30)

Table 2: Relation BOOK_AUTHORS

(2 Marks)

ATTRIBUTE	DATATYPE
book_ID (Primary key. References book_ID from relation BOOK)	VARCHAR2 (5)
branch_ID (Primary key. References branch_ID from relation LIBRARY_BRANCH. Requires value)	VARCHAR2 (5)
no_of_copies (requires value)	INTEGER

Table 3: Relation BOOK_COPIES

ATTRIBUTE	DATATYPE
card_no (Requires value)	VARCHAR2 (8)
name (Requires value)	VARCHAR2 (30)
address (Requires value)	VARCHAR2(40)
City	VARCHAR2 (20)
phone	INTEGER

Table 4: Relation BORROWER

3. Alter the table
   a. Add constraint to the table BORROWER named borrower_cardno_pk to create the attribute name as the primary key . (2 Marks)

   b. Delete the column city from the table BORROWER. (1 Mark)

   c. Modify column the column phone from table BORROWER to type varchar2 with a length of 10. (1 Mark)

4. Create a copy of the table
   a. Create a copy of the table BOOK_COPIES and name it BOOK_LOANS (1.5 Marks)

   b. Delete the column no_of_copies from the table BOOK_LOANS. (1 Mark)

   c. Add the columns card_no, date_out and due_date to the table BOOK_LOANS. (2 Marks)

   d. Add the constraint for table BOOK_LOANS to create the primary key which consists of the set book_id, and card_no. Name the constraint book_loans_pk. (2 Marks)

Consider the following relations in a Clinic – Patient System:

Patient (**pID**, pName, pGender, pDOB, pAddress, pContact)
Doctor (**dID**, dName, dContact)
Registration (**rID,** rDate, pID, dID, prescription)
    Foreign key: pID references **Patient** (pID)
                        dID references **Doctor** (dID)

Table 3.1: Structure for **Patient** relation

Attribute	Data Type	Constraints
pID	Integer	Primary Key
pName	Variable character of length 50	
pGender	Variable character of length 10	
pDOB	Date	
pAddress	Variable character of length 80	
pContact	Integer	

Table 3.2: Structure for **Doctor** relation

Attribute	Data Type	Constraints
dID	Integer	Primary Key
dName	Variable character of length 50	
dContact	Integer	

Table 3.3: Structure of **Registration** relation

Attribute	Data Type	Constraints
rID	Integer	Primary Key
rDate	Date	
pID	Integer	Foreign Key where reference relation is **Patient** (pID)
dID	Integer	Foreign Key where reference relation is **Doctor** (dID)
prescription	Variable character of length 100	Default value "NA"

Construct the SQL Data Definition Language (DDL) statement for the following queries:
  a) Construct the **Patient** relation without constraints.   (3 marks)

  b) Add the constraints into **Patient** relation.   (1 mark)

  c) Construct the **Registration** relation with constraints.   (4 marks)

  d) Add a new column named *Nationality* into the **Patient** relation where the data type is variable character of length 15 and is set to NOT NULL.   (3 marks)

  e) Delete the column *prescription* from the **Registration** relation.   (1 mark)

f) Create a new relation named **Consultation** that has the same structure as **Registration** relation. (2 marks)

g) Delete the **Registration** relation. (1 mark)