



VIT

Vellore Institute of Technology
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CHENNAI

Reg. Number:

22BCE1126

Continuous Assessment Test (CAT) – I - February 2024

Programme	:	B.Tech (CSE)	Semester	:	Winter Semester 2023-2024
Course Code & Course Title	:	BCSE302L & Database Systems	Slot	:	A2+TA2
Faculty	:	Dr. M. Premalatha Prof. Sukanya G Dr. Vijayakumar K P Dr. Graceline Jasmine S	Class Number(s)	:	CH2023240502443 CH2023240502444 CH2023240502446 CH2023240502447
Duration	:	90 Mins	Max. Mark	:	50

Answer all questions

Q. No	Sub Sec	Description	Marks
1		<p>Consider the following relations:</p> <p><i>customer(customer_name, customer_id, address, contact_no)</i> <i>life_insurance(insurance_policyid, customer_id, year)</i> <i>vehiclepolicy(insurance_policyid, vpcid, vehicle_model, branchname)</i></p> <p>Write SQL queries for the following operations:</p> <ol style="list-style-type: none"> Create tables for the above given schemas with key constraints, <i>address</i> with not null, <i>contact_no</i> should be 10 digits and allow unique values for <i>customer_name</i> [5 marks] Describe any 2 instances of constraint violations while inserting the data. [2 marks] Add check constraint for the <i>model</i> with specific values to the already created table [2 marks] Identify the mapping cardinality of the associated relation [1 mark] Drop the not null constraint which was set to the <i>address</i> [2 marks] Drop the foreign key constraints from <i>vehiclepolicy</i> relation [3 marks] 	15
2		<p>Consider a pharmacy database that handles information related to medications, prescriptions, patients, doctors, and inventory. Draw the E-R diagram for the data requirements, summarized as follows:</p> <ul style="list-style-type: none"> Each patient is uniquely identified by a <i>patient_id</i> and has attributes like name recorded as <i>fname</i> and <i>lname</i>, contact information, and date of birth. The intime and out time during doctors' visit is also noted to know the duration of time spent with doctor. Also, a patient can visit a doctor at a time and each doctor can treat one patient at a time, Each doctor is identified by a <i>doctor_id</i> and has attributes like name, contact details, and specialization. Each medication is identified by attributes such as <i>medication_name</i>, dosage, and manufacturer. Prescriptions are uniquely identified by a <i>prescription_id</i> and include details like <i>patient_id</i>, <i>doctor_id</i>, issue date, and expiration date. The pharmacy maintains information about medication inventory, including <i>stock_id</i>, <i>medication_id</i>, quantity, and expiration date. Each prescription is associated with at least one medication. Medication inventory is tracked based on the quantity and expiration date. A patient can have multiple prescriptions from different doctors. One patient can have multiple prescriptions; each prescription is associated with 	10

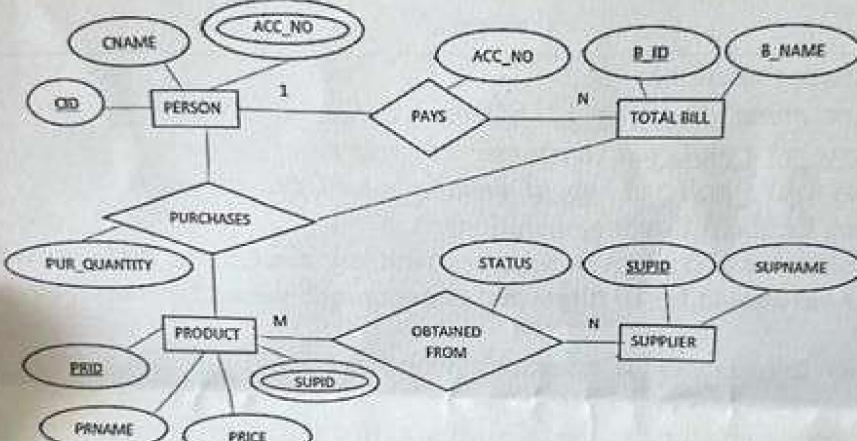
only one patient

- One doctor can issue multiple prescriptions; each prescription is issued by only one doctor
- One prescription can include multiple medications. One medication can be present in multiple prescriptions, and each prescription includes multiple medications
- One medication can have multiple inventory records; each inventory record is associated with only one medication

3

Examine the given ER diagram for an online shopping application and present the relational schema for the same. Detail the steps used to convert the given ER diagram into relational schema.

- Identify types of attributes, key constraints, mapping cardinalities, participation constraints, weak entity [4 marks]
- Write the final Relational schemas and draw the schema diagram [6 marks].



Multispecialty hospital offers a wide range of medical services and has the capability to treat many different types of illnesses and conditions. This hospital maintains the information about doctors, patients, visiting the doctors, patients' history, result of diagnosis and the prescribed medicine in a file processing system.

- Describe the need of database management system for the above scenario. [6 Marks]
- Assume the hospital is planning to globalise their branches across the countries. Elaborate the database system architecture that suits the given scenario with a neat sketch. [4 Marks]

5

What is the need for an Extended Entity Relationship Model? Discuss with an example.

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5

***** All the best *****