

Partial Exam for the Academic Year 2022/2023

The following is a description of some data requirements for a chain of pharmacies. Draw the appropriate entity-relationship (E-R) diagram. Clearly show all cardinality constraints, cardinality limits, and existence dependencies.

- (a) A pharmaceutical company manufactures one or more drugs, and each drug is manufactured and marketed by exactly one pharmaceutical company.
- (b) Drugs are sold in pharmacies. Each pharmacy has a unique identification. Every pharmacy sells one or more drugs, but some pharmacies do not sell every drug.
- (c) Drug sales must be recorded by prescription, which are kept as a record by the pharmacy. A prescription clearly identifies the drug, physician, and patient, as well as the date it is filled.
- (d) Doctors prescribe drugs for patients. A doctor can prescribe one or more drugs for a patient and a patient can get one or more prescriptions, but a prescription is written by only one doctor.
- (e) Pharmaceutical companies may have long-term contracts with pharmacies and a pharmacy can contract with zero, one, or more pharmaceutical companies. Each contract is uniquely identified by a contract number.