Q1.

ANS := π name,City (σ AnnualBudget > 3000000 (Hospital))

Q2.

R1 := ρ ID/PatientId(Person)

R2 := σ Disease LIke '%Cancer'/\ Year(CURRENT_DATE) - Year(DateOfBirth) < 41 (R1 ⋈ Patient ⋈ Disease)

ANS := π FirstName,LastName,Gender,DateOfBirth(R2)

Q3a.

R1 := γ Specialty,AVG(Salary) (Physician)

ANS := π Specialty,AVG(Salary) (R1)

Q3b.

R1 := σ City = 'Toronto' \/ City = 'Hamilton' (Hospital ⋈ Physician)

R2 := γ Specialty,AVG(Salary),count(PhysicianID)(R1)

ANS := π Specialty,AVG(Salary) (σ count(PhysicianID) > 4 (R2))

Q3c.

R1 := γ YearsOfPractice,AVG(Salary) (Nurse)

R2 := π YearsOfPractice,AVG(Salary)->AverageSalary (R1)

ANS := τ -AverageSalary,YearsOfPractice(R2)

Q4.

R1 := σ Date > date('2017-08-05') (Admission)

R2 := σ Date < date('2017-08-10') (Admission)

ANS := γ HName,count(PatientId) (R1 ⋈ R2)

Q10a.

R1 := σ HName = "University of Toronto Medical Centre" /\ DName = "Intensive Care Unit" (Diagnose ⋈ Physician)

ANS := π PatientID,Disease,Prognosis(R1)

Q10b.

R1 := σ HNAme = "University of Toronto Medical Centre" /\ DName = "Intensive Care Unit" (Diagnose ⋈ Physician)

R2 := γ PatientID,SUM(FEE) (Take ⋈ MedicalTest ⋈ R1)

ANS := τ -totalFee,PatientID (π PatientID,SUM(FEE)->totalFee (R2))

10c.

R1 := σ HNAme = "University of Toronto Medical Centre" /\ DName = "Intensive Care Unit" (Diagnose ⋈ Physician)

R2 := γ PatientID, SUM(UnitCost) (Prescription ⋈ Drug ⋈ R1)

ANS := τ -totalFee,PatientID (π PatientID,SUM(UnitCost)->totalFee (R2))

11.

R1 := ρ ID/PatientID(Person)

R2 := σ Category = 'urgent' \/ Category = 'standard' (R1 ⋈ Admission)

ANS := π PatientID->ID,FirstName,LastName (R2)