National University of Computer and Emerging Sciences, Lahore Campus

Course:	**Object Oriented Analysis & Design - Lab**	**Course Code:**	**CS-209**	
Program:	**BS (Computer Science)**	**Semester:**	**FALL 2018**	
Duration:	**90 Minutes**	**Total Marks:**	**50**	
Paper Date:	**29-oct-2018**	**Weight**	**-**	
Section:	**A, C, D, E**	**Page(s):**	**2**	
Exam:	**Mid**	**Reg. No.**		

Instructions:

- If you find any confusion in the statement, make suitable ASSUMPTIONS.

- "Mid Submission" folder is located in your respective lab folders.

- Submit complete project folder

- Your cell phones should be switched off and placed on your desk upside down.

- You are not allowed to borrow anything.

- You are immediately disqualified from the exam if:

    - You are seen talking, whispering, borrowing or looking at someone's PC.

    - A USB is found attached to your PC.

    - You are seen using cell phone.

    - You are caught using internet.

- F grade will be awarded on plagiarism.

Good Luck ☺

Q no.	Total	Obtained
1	25	
2	25	

Consider a Hospital Management System (HMS) for a charity hospital which offers free health care services to its patients.

On daily basis, many people come to the hospital. Each person that comes to the hospital is either a patient or a staff member. The hospital has many departments and the staff works with each department. The staff can be further categorized as medical staff (doctors, nurses, etc.), administrative staff (receptionist, monitor, assistant etc.) and technical staff (technician, electrician, etc.). The staff is allocated to the department based on its number of wards. There are two departments, Clinical Department and Surgical Department. Each department can have many Wards. Further, there are special sections near each ward. Usually waiting section is where most of the patients come initially. Once a patient has completed his first time enrollment in the hospital, next time he comes, he can reach the doctor directly without any enrollment or visit waiting area.

Bonus: If the patient has come three times consecutively, he gets premium treatment. Your system should tell if the patient if the patient is eligible for premium treatment (for bonus marks)

Q1.Identify all the classes and make a clear and compact class diagram with well defined relations.

Marks will be deducted if there is a mismatch between design and implementation. Use StarUML for this part.

Q2. Develop a java application for the above mentioned system. Your system should be able to:

- Register Patients
- Refer Department, Ward number and Date to each patient (assign waiting area if the patient has arrived first time after registration)
- Maintain number of staff members for each department

Implement the complete driver program that takes each and every input from user and shows details accordingly. SHOW ALL RELATIONS IN CODE WHICH YOU HAVE USED IN DIAGRAM