

<b>Submitted By</b>	<b>Hooria Khan Orakzai</b>
<b>ID</b>	<b>14263</b>
<b>Department</b>	<b>BS(Software-Engineering)</b>
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<b>Submitted To</b>	<b>Mam Aamsa Khan</b>



# IQRA NATIONAL UNIVERSITY

Final-Term Examination Spring 2020

Course Name	Max. Marks	Max. Time	Date	Instructor
Software Requirement Specification	50	6 hrs. 9-3 PM	24 <sup>th</sup> June 2020	Aasma Khan

- **Attempt all questions.**
- **Marks will be given as per the DEPTH of the answer, not LENGTH.**

**Question No: 01**

(10)

Define requirements and define what the system (take example of any system) is required to do and what are the features and constraints under which it operates.

Requirement:

The requirement are the description of the system services and constraints that are generated during the requirements engineering process

These are basically description of the services that a software system must provide. There are two type of requirements.

- 1) User requirement
- 2) System requirement

what the system is required to do:

**Library System**

- The system shall maintain records of all library materials including books, serials, newspapers and magazines, video and audio tapes, reports, collections of transparencies, computer disks and CD-ROMs.
- If someone takes the book the data will be stored in the system.
- If requirements are not satisfied then the system may be unworkable.

### Features

- Provide you membership.
- The system shall allow users to search for an item by title, author, or by ISBN
- All the names and verity of books are available.
- It provides knowledge and aware about books.
- Easy to use, search books.

### Constraints

- Renewal of membership after 6 months.
- Limit on assigning book.
- There is limit on the time of assigning a book (1 to 2 months)
- If the book is damage or misplaced in this case the librarian is legible to give ticket or he can cancel your membership.
- Silence is the primary key of library rules

**Question No: 02**

(10)

Explain software requirements types.

Following are the software requirement types

- Business Requirements (BR) ...
- Market Requirements (MR) ...
- Functional Requirements (FR) – Use Cases. ...
- Non-Functional Requirements (NFR) ...
- UI Requirements (UIR)

#### **1) Business Requirements (BR)**

- a. These are high-level business goals of the organization building the product, or the customer who commissioned the project.

- b. These are usually provided as a single page of high-level bullets.

## **2) Market Requirements (MR)**

- a. These drill down into BRs, but still are high-level. In addition to business goals, they also outline market needs.
- b. These are usually provided as a prioritized bulleted list or table, and are usually less than 5 pages long.

## **3) Functional Requirements (FR) – Use Cases**

- a. These cover the functionality of the product in detail. Use cases are one of the best ways of documenting functional requirements.
- b. Depending on the product being built, FRs can run several hundred pages.

## **4) Non-Functional Requirements (NFR)**

- a. These are not related to the “functionality” of the product – but cover goals such as Reliability, Scalability, Security, Integration, etc.
- b. Many projects make the mistake of not specifying these explicitly.

## **5) UI Requirements (UIR)**

- a. User interface specs are not considered “requirements” in traditional requirements management theory.
- b. Phooey! In my opinion, UI specs are indeed requirements (what else are they?) – and in fact should be considered an integral part of requirements for any software that has a UI.

**Question No: 03**

(10)

State difference between system requirement engineering and software requirement engineering.

### **System Requirement Engineering:**

System requirements are the configuration that a system must have in order for a hardware or software application to run smoothly and efficiently. Failure to meet these requirements can result in installation problems or performance problems. ... System requirements are also known as minimum system requirements

System requirements are all of the requirements at the system level that describe the functions which the system as a whole should fulfill to satisfy the stakeholder needs and requirements, and are expressed in an appropriate combination of textual statements, views, and non-

functional requirements; the latter expressing the levels of safety, security, reliability, etc., that will be necessary.

### System requirements play major roles in systems engineering, as they:

- Form the basis of system architecture and design activities.
- Form the basis of system integration and verification activities.
- Act as reference for validation and stakeholder acceptance.
- Provide a means of communication between the various technical staff that interact throughout the project.

### Software Requirement Engineering:

Software specification or requirements engineering is the process of understanding and defining what services are required and identifying the constraints on these services. Requirements engineering processes ensures your software will meet the user expectations, and ending up with a high-quality software.

Software Requirement Engineering is perhaps the most difficult, most error-prone and most communication intensive software development. It can be successful only through an effective customer-developer partnership. It is needed to know what the users really need.

There are a number of requirements elicitation methods. Few of them are listed below –

1. Interviews
2. Brainstorming Sessions
3. Facilitated Application Specification Technique (FAST)
4. Quality Function Deployment (QFD)
5. Use Case Approach

### Difference B/W Software Requirement Engineering & System Requirement Engineering:

- ✚ (System Requirements Specification) This is the high-level engineering document that enumerates the requirements on how the system is to function. A system requirements specification collects information on the requirements for a system.
- ✚ (Software Requirements Specification) This is a complete description of the requirements of a single software component. A software requirements specification

(SRS) includes in-depth descriptions of the software that will be developed.

**Question No 04:**

(10)

Give five reasons why requirements negotiation is needed in software engineering.

**Five reasons why requirements negotiation is needed in software engineering:**

- 1) Requirements negotiation is an iterative process through which stakeholder make tradeoff between
- 2) During negotiation, the software engineer reconciles the conflicts between what the customer wants and what can be achieved given limited business resources
- 3) Requested System Function
  - The capability of existing or envisioned technology.
  - The delivery schedules
  - The cost
- 4) Requirement engineering is a fundamental part of the software engineering process, when the stake holders of software project disagree on requirements, requirement negotiation method can be used to reach that agreement , this avoids rework and extra costs.
- 5) Due to iteration approach requirements are eliminated combined and/or modified, that each party achieves some measure of satisfaction

**Question No 05:**

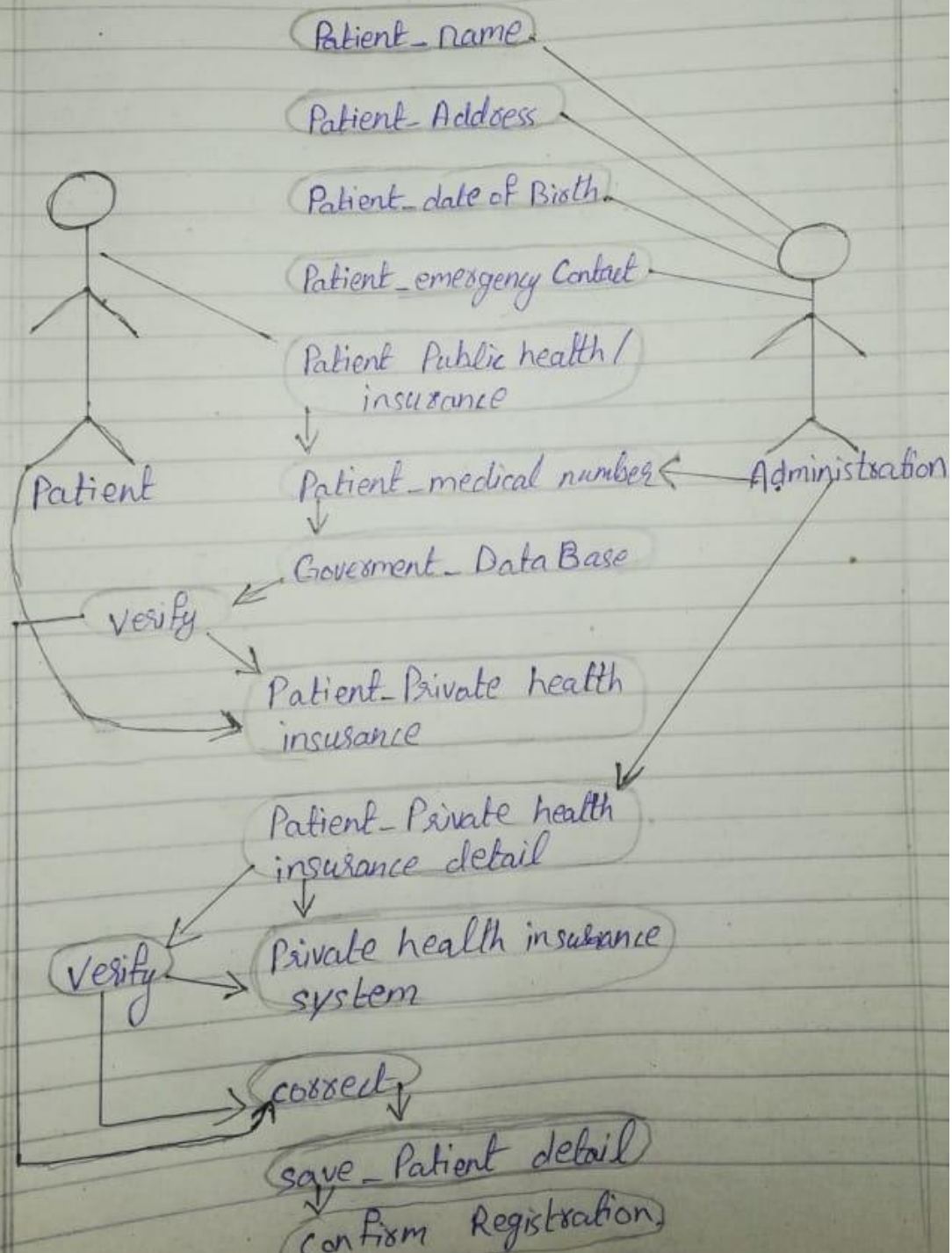
(10)

Identify the **actors** and the **objects** in the following scenario to register a patient in a hospital management system and draw a **use case diagram**:

The administrator enters the patient's name, address, date of birth and emergency contact details into the system. If the patient has only public health insurance, the administrator enters the patient's medicare number, and the system verifies this with government health database. If the patient also has private health insurance, then the administrator enters also the patient's private health insurance details, and the system verifies these details with the private health insurance system. When these details are verified as correct, the system saves the patient's details and confirms the registration.

QUES NO 5:

## USE CASE DIAGRAM



Good Luck 😊