



MALAYSIAN INSTITUTE OF INFORMATION TECHNOLOGY

**FINAL EXAMINATION
JANUARY 2016 SEMESTER**

SUBJECT CODE : ISB 23103
SUBJECT TITLE : SOFTWARE REQUIREMENTS ENGINEERING
LEVEL : BACHELOR
TIME / DURATION : 2.00 pm – 4.30 pm
(2 ½ HOURS)
DATE : 24 MAY 2016

INSTRUCTIONS TO CANDIDATES

1. Please read the instructions given in the question paper CAREFULLY.
2. This question paper is printed on both sides of the paper.
3. This question paper consists of ONE section. Section A.
4. Answer ALL questions in Section A.
5. Please write your answers on the answer booklet provided.
6. Answer all questions in English.

THERE ARE 5 PAGES OF QUESTIONS, INCLUDING THIS PAGE.

SECTION A (Total: 100 marks)**INSTRUCTION: Answer ALL questions.****Question 1**

- (a) Define the term "requirement".
(5 marks)
- (b) Discuss the goal of requirements engineering".
(3 marks)
- (c) Illustrate the framework for requirements engineering.
(12 marks)

Question 2

- (a) Requirements management activity is one of the cross-sectional RE activities. Managing the requirements artefacts is listed as one of the objective of requirements management. Determine **FIVE (5)** sub-tasks of managing requirements artefacts.
(5 marks)
- (b) Determine the overall goal of requirements management activity.
(3 marks)
- (c) List another **TWO (2)** of requirements management activity.
(2 marks)
- (d) i. Determine **THREE (3)** validation criteria for content dimension.
(3 marks)
- ii. State another **TWO (2)** quality aspects for requirements artefacts other than content dimension.
(2 marks)

- (e) Consider the following centralized lock control system for a university.

A centralized lock control system which controls the locks of all external doors in university buildings is to be implemented. Some requirements for this system are as follows:

- REQ1. Staff and students are issued with a card which provides them with access to those buildings which they are authorized to use after normal working hours.
- REQ2. Access is implemented by wiping a personalized card through a card reader and, if entry is allowed, the door lock is released.
- REQ3. Users must use the card to both enter and leave locked buildings.
- REQ4. If a card is lost, it should be reported to the security office who will issue a new card and arrange for all access rights associated with the old card to be cancelled.

Review the above requirements and determine possible problems with them.

(5 marks)

Question 3

(a) Consider a CD-ROM rental application system.

i. Suggest **TWO (2)** functional requirements for the system.

(6 marks)

ii. Improvise and re-write the following requirements.

REQ1. The CD-ROM rental application system shall be easy-to-use.

REQ2. The CD-ROM rental application system shall provide a rapid response to all user requests for CD-ROM information.

(4 marks)

(b) Consider the requirements below. Identify the problem type, problems and recommendations.

REQ2. The user interface will be html. Users will access the library system via standard web browsers such as Internet Explorer and Google Chrome.

REQ3. Users will communicate with the library system mainly via the html interface.

(10 marks)

Question 4

(a) Create a statechart diagram for the process of taking order in pizza shop, until the customer received order and make payment.

(8 marks)

(b) Consider a Patient Management System for a hospital. Specify the requirements using use case template for "Register Patient" use case.

(12 marks)

Question 5

Consider the following information that can be used in elicitation phase of a Patient Management System for Trillium Medical Centre.

Case Study of Patient Management System for Trillium Medical Centre:

- The Rise
 - Trillium Medical Centre reached its zenith in 1970's, with more than 500 licensed beds and departments in most areas of hospital medicine.
- The Decline
 - Towards the end of millennium, Trillium Medical Centre was no longer profitable.
- The Revival
 - With the boom market of the late 1990's, the private corporation which owned Trillium Medical Centre decided to herd its capital towards the greener pastures of Dotcoms and put the hospital on the block.

During project inception the following information are gathered.

The project has to address four broad, separate but interrelated areas:

Business & Finance:

- Patient Care
- Service Cuts
- Charity. Bidding
- Inventory
- Drugs
- HMOs
- Subscription Plan
- Web Services
- Incentives

Organization & Staff:

- Hierarchy
- Alienation
- Inertia

Infrastructure:

- Neglect
- Inadequacy of IS

Medical:

- Outsourcing
- Obsolescence
- Archives
- Drug Inventory
- Cost Predicament
- Research (Lack of)
- Accreditations

The consultant concluded that to achieve the goals of the capital-improvement project, an integrated, comprehensive electronic information system is indispensable.

Create a class diagram for the Patient Management System based on the information above and use your analytical ability as requirements engineer to add more appropriate requirements.

(20 marks)

END OF QUESTION