

SAMPLE PAPER

**Institute of Systems Science
National University of Singapore**

GRADUATE DIPLOMA IN SYSTEMS ANALYSIS

SA Term 1 Examination Sample Paper 1: Software Analysis and Design

Matriculation Number:

(Fill in your matriculation number here)

Instructions for Paper

Date: Day, Date
Time: 9.00am
Duration: 3 hours (9.30 a.m. to 12.30 p.m.) excluding reading time
Place: NUS MPSH4

This is an **open book** examination.

You are given **30 minutes** to read the questions before the examination starts. You are **NOT** allowed to use any writing instrument during the reading time.

1. Read all instructions before answering any of the examination questions.
2. Write your matriculation number on the top of this front page in the box provided.
3. Complete the front cover of each answer book you use. The blank lines on the front cover to be filled in as follows:

Matriculation / Registration No: = *(Your matriculation number)*
Module Code/Title: = *Paper 1: Software Analysis and Design*
Semester: = *SA Term 1*
Number of books handed in: = *(indicate the number of booklet you have used for each section.)*

4. Write your matriculation number on **ALL** answer books you use.
5. This examination paper consists of **two (2)** sections and **xx (x)** questions. You are to answer **ALL** questions.
6. The total marks for this examination paper is **xx (xx)** marks. **xx (xx)** marks will be taken from the continuous assessment.
7. An answer to a question must begin on a new page.
8. **Use a SEPARATE Answer Book for each SECTION.**
9. After completing the paper, tie your answer books together according to **sections**. Make sure that the questions for each section are identified on the front page of each answer book.
10. The question paper is to be submitted together with the answer books. **You are not allowed to take the question paper with you.**
11. Scrap paper may be used as required, but only answers written in the answer book will be considered for credits.
12. Use a pen for writing your answers. Pencil may be used only for drawing diagrams.
13. Calculators may be used if required.
14. State clearly any assumptions you make in answering any question where you feel the requirement is not sufficiently clear.

Section A [40 marks]

ADLC1

Question 1 [40 marks]

This question is based on the Case Study “The Singapore Zoo” given in **Appendix A**.

You are engaged as an IT consultant to help fully automate the activity in both the animal maintenance unit and central kitchen unit. The automation should also help to facilitate the work of between animal maintenance and the other units.

- a) Identify 2 personas and describe their painpoints and features that they would like to have.
(5 marks)
- b) Draw the use case diagram of the system and explain very briefly the scope of your proposed automation. You are required to describe each of the processes briefly.
(10 marks)
- c) Draw the **activity diagrams** for all the use cases. You are required to include entities in all activity diagrams and describe each entity briefly.
(25 marks)

~~~~~ *End of Section A* ~~~~~

## Section B [40 marks]

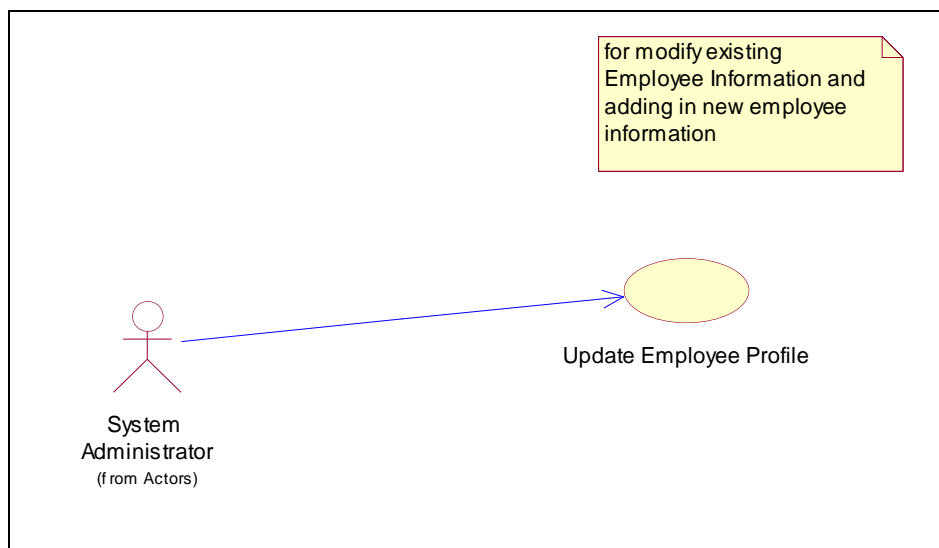
### ADLC2

#### Question 2 [40 marks]

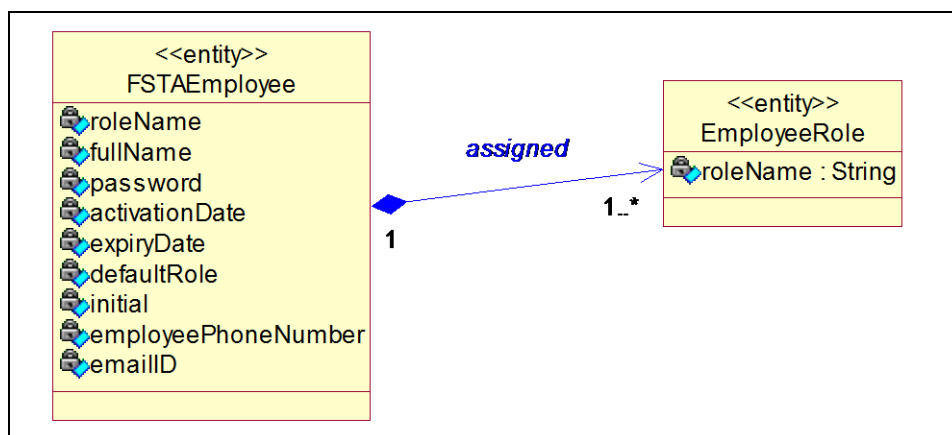
- a) You are now into the Analysis Workflow stage of the FSTA Tour Booking System and are in the process of performing a Use Case Realization on the “**Update Employee Profile**” use case.

You are given the following a Use Case Diagram, an Entity Class Diagram and the story boarding of the Use Case (see **Appendix B**).

#### Use Case Diagram



#### Entity Class Diagram



**You are required to:**

Draw the sequence diagram for the “Update Employee Profile” Use Case.

**(20 marks)**

- b) You have completed the Analysis Workflow for FSTA Tour Booking System and you are now in the Design Workflow stage.

**You are required to:**

Draw the state charts for the two screens, “**EmployeeListUI**” and “**EmployeeDetailsUI**” “**Update Employee Profile**” Use Case.

**(20 marks)**

Refer to **Appendix B** for the Story Boarding of the use case. Clearly state all additional assumption you have made.

~~~~~ ***End of Section B*** ~~~~~

~~~~~ ***End of Sample Paper 1*** ~~~~~