



**Universiti
Malaysia
PAHANG**

Engineering • Technology • Creativity

FACULTY OF COMPUTER SYSTEMS & SOFTWARE ENGINEERING

FINAL EXAMINATION

COURSE	:	SYSTEMS ANALYSIS & DESIGN
COURSE CODE	:	DCS1093
LECTURER	:	BARIAH YUSOB
DATE	:	20 APRIL 2009
DURATION	:	2 HOURS 30 MINUTES
SESSION/SEMESTER	:	SESSION 2008/2009 SEMESTER II
PROGRAMME CODE	:	DCS

INSTRUCTIONS TO CANDIDATES

1. This question paper consists of **TWO (2)** sections: **SECTION A AND SECTION B. Answer ALL questions.**
2. Write your answers in the answer booklet provided.
3. All answers to a new question should start on new page.

EXAMINATION REQUIREMENTS

NONE

DO NOT TURN THIS PAGE UNTIL YOU ARE TOLD TO DO SO

This examination paper consists of **FIVE (5)** printed pages including front page.

SECTION A: STRUCTURED QUESTION**[40 Marks]****QUESTION 1**

Give **FOUR (4)** core elements of UML diagrams. Name and draw the notation of the elements then write a brief description of each element.

[8 Marks]**QUESTION 2**

What is a **synchronous message** and **asynchronous message**? How is each of these messages shown on a sequence diagram?

[4 Marks]**QUESTION 3**

Define **TWO (2)** advantages and disadvantages of using colors in your design.

[4 Marks]**QUESTION 4**

The objective for designing forms, reports and all human-computer interactions is usability – in term of speed, accuracy and satisfaction. What characteristics of an interface are used to access **system's usability**?

[8 Marks]**QUESTION 5**

List **EIGHT (8)** common interface and dialogue design errors found in web sites.

[4 Marks]**QUESTION 6**

Management support and user involvement impact the successful implementation of a new system. List **FOUR (4)** other factors that may influence implementation success?

[4 Marks]

QUESTION 7

Given a program:

Quiz Software version 1.0 enable students to answer objective questions online. Students need to click on the question number that they're going to answer. Answering the question is limited to pre-set quiz duration. Once the time limit is over, students are not allowed to continue answering the question even though they haven't finish yet. If the student finished answering the quiz, they need to press the 'submit' button. Then, the students' answer is evaluated and marks will be given to the correct answer.

a) Identify the appropriate function in Quiz Software based on the following testing categories:

- i. simple functionality
- ii. multiple functionality
- iii. function chains
- iv. elective functions

[4 Marks]

b) Pick up any function from the 'simple functionality' category. Prepare a test case for the chosen function based on the following form:

- i. Test case description
- ii. Description of test data
- iii. Expected result
- iv. Actual result

* Put NULL if necessary

[4 Marks]

SECTION B: ESSAY QUESTION [60 Marks]**QUESTION 1**

Read the following case study carefully.

An organization has been entrusted with developing a registration and title system that maintains information about all vehicles registered in a particular state. For each vehicle that is registered with the office, the system has to store the name, address, and telephone number of the owner; the start date and end date of the registration; plate information (issuer, year, type and number); sticker information (year, type, and number); and the registration fee. In addition, the following information is maintained about the vehicles themselves: the number, year, make, model, body style, gross weight, number of passengers, diesel powered (yes/no), color, cost and mileage.

If the vehicle is trailer, diesel-powered and number of passengers are not relevant. For travel trailers, the body number and length must be known. The system needs to maintain information on the luggage capacity for a car, maximum cargo capacity and maximum towing capacity for a truck, and horsepower for motorcycle. The system issues registration notices to owners of vehicles whose registrations are due to expire after 2 months. When the owner renews the registration, the system updates the registration information on the vehicle.

Based on the case study, answer all the questions below:

- a) Draw a **use case diagram** for the whole system. [5 Marks]
- b) Draw a **class diagram** that shows all of the object classes, attributes, operations, relationships, and multiplicities. [15 Marks]

- c) One of the use cases for this application is “Issue registration renewal notice”, which is performed once every day. Draw a **sequence diagram**, in generic form, showing all possible object interactions for this use case.

[10 Marks]

QUESTION 2

Imagine that you are given a task by Bahagian Pengurusan Akademik (BPA) to re-design the Universiti Malaysia Pahang student registration slip. The information that should be included are:

- i. The university logo
- ii. The particular semester of student's registration
- iii. The faculty name, student name, student ID, and student address
- iv. List of subject enrolled, subject code, section and credit
- v. Any important information

Based on the above information, answer the following questions:

- a) Explain the process of designing interfaces and dialogues.

[8 Marks]

- b) Describe **FOUR(4)** general guidelines for designing the Forms and Reports.

[8 Marks]

- c) Design the registration slip based on the guidelines as given in (b).

[14 Marks]

END OF QUESTION PAPER