

**Universiti  
Malaysia  
PAHANG**

Engineering • Technology • Creativity

**FACULTY OF COMPUTER SYSTEMS & SOFTWARE ENGINEERING  
FINAL EXAMINATION**

<b>COURSE</b>	<b>:</b>	<b>SYSTEM ANALYSIS &amp; DESIGN</b>
<b>COURSE CODE</b>	<b>:</b>	<b>DCS1093</b>
<b>LECTURER</b>	<b>:</b>	<b>ROHANI BINTI ABU BAKAR</b>
<b>DATE</b>	<b>:</b>	<b>11 JUNE 2012</b>
<b>DURATION</b>	<b>:</b>	<b>2 HOURS AND 30 MINUTES</b>
<b>SESSION/SEMESTER</b>	<b>:</b>	<b>SESSION 2011/2012 SEMESTER II</b>
<b>PROGRAMME CODE</b>	<b>:</b>	<b>DCS</b>

**INSTRUCTIONS TO CANDIDATE:**

1. This question paper consists of SEVEN questions. Answer ONLY 4 questions from SECTION A and ALL questions in SECTION B.
2. Write your answers in the answer booklet provided.
3. Answer EACH question on a new page.
4. All calculations and assumptions must be clearly shown.

**EXAMINATION REQUIREMENTS:**

NONE

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

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This examination paper consists of SEVEN(7) printed pages including the front page.

**SECTION A: Structured Questions****[40 MARKS]**Answer **FOUR (4)** questions **ONLY** in this section.**QUESTION 1****[10 Marks]**

- (a) CASE tools are used to support a wide variety of SDLC activities. Illustrate **TWO (2)** advantages of using CASE tools in SDLC and give an example for each advantage.

**[4 Marks]**

- (b) List **SIX (6)** different types of project feasibility factors. Is there any most important factor? Justify your answer.

**[4 Marks]**

- (c) There are several parameters that should be considered when evaluating the success of a project. Discuss **TWO (2)** of them.

**[2 Marks]****QUESTION 2****[10 Marks]**

- (a) There are three main deliverables in requirement determination stage. List **THREE (3)** deliverables and explain how it will help throughout the development life cycle?

**[3 Marks]**

- (b) Prepare one sample of open-ended question and one sample of close-ended question that can be used in the interview session for gathering the requirement for an Integrated Student Information Systems. The information is to be used for developing ideas for the next new module named as Student Examination Timetabling System. Indicate who should be asked for both questions?

**[3 Marks]**

- (c) Illustrate how Joint Application Development (JAD) should be conducted to get maximum output from the participants to achieve the identified objective.

**[4 Marks]**

**QUESTION 3****[10 Marks]**

Consider the following scenario to answer the questions.

Students whose ID does not start with 'P' or 'M' are entitled to borrow four books at any one time. For those in year 3 and above, they are allowed to borrow the books up to three weeks and the other students are allowed to borrow only for two weeks. For students whose ID starts with 'P' or 'M'. If only their status is 'full time', they are entitled to borrow up to ten books at any one time. 'Part time' students whose ID starts with 'P' and 'M' are eligible to borrow only six books at any one time. All students with ID starting with 'P' and 'M' are allowed to keep the books for four weeks. However, all the conditions are only considered if student's status is 'active' and 'clean record' in the systems.

(a) Draw the decision table for the given scenario.

[6 Marks]

(b) Translate your decision table in Question 3(a) into structural English mode.

[4 Marks]

**QUESTION 4****[10 Marks]**

Consider the following case study.

AD Café wants to install a system to record the customers' orders. When regular customers call AD Café on the phone, the AD Café staff asked for their phone numbers. When the phone number is keyed in into a computer, the history about the customers' orders consist of the name, address and last order date are automatically viewed on the screen. Once the new order is taken, the total, including tax and delivery are calculated. The order is given to the kitchen. Then, a receipt is printed. Occasionally, special offers coupons are also printed for customers to receive some discounts from the AD Café. Drivers who make deliveries give customers a copy of the receipt and a coupon (if any). Weekly totals are kept for comparison with last year's performance.

Based on the case study:

(a) Build the Dialog Diagram for the given case study.

[4 Marks]

(b) From your Dialog Diagram ad Question 4(a), design an interface with the description of selected properties for your design.

[6 Marks]

### QUESTION 5

[10 Marks]

(a) When does a system need to undergo the maintenance stage?

[2 Marks]

(b) Explain the differences between ‘system documentation’ and ‘user documentation’. Give **ONE (1)** example of each documentation.

[4 Marks]

(c) Why do we need to use different approaches for the installation strategies? Briefly explain which condition is suitable for each different installation strategies.

[4 Marks]

### QUESTION 6

[10 Marks]

Given in Figure 1 is a use case diagram for the following case study. Answer the following questions.

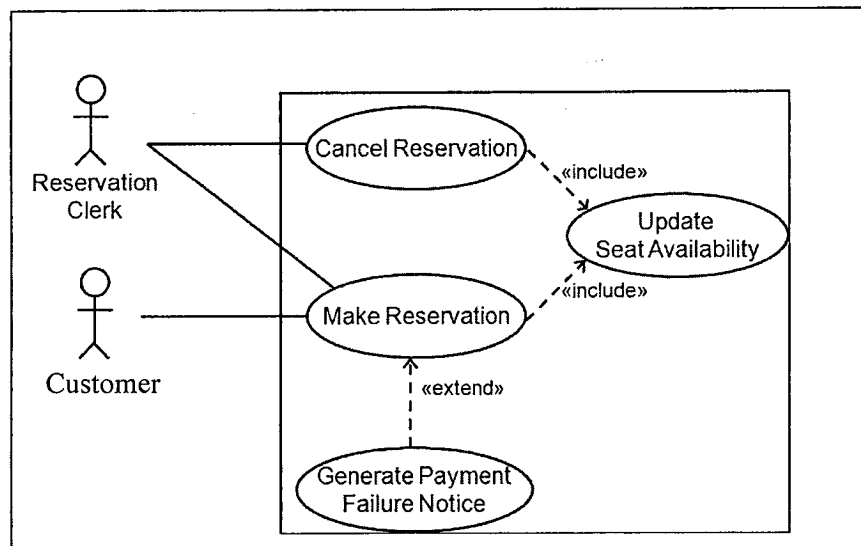
#### Bus Ticket Reservation System

ABC Transportation System is a bus company that offers an express bus service to all destinations in Peninsular Malaysia. In order to help their customer to reserve or buy a ticket, they plan to deploy a Bus Ticket Reservation System. Through this system, customer will be able to make reservation for tickets by login into the system. They need to input the information on the destination and the date of travelling.

Besides that, for insurance purpose, customer needs to provide their personal information such as name, identity card number, telephone number, and permanent address. Before the system calculates the price of the ticket, customer can select their preferred seat, or it can be randomly

chosen by the system. For payment, customer can select either to pay by online banking or credit card. If the customer enters the invalid payment information, the system will ask for the information again; if three times of invalid payment are entered into the system, the system will cancel and terminate the reservations, and all the information will be rolled back and payment failure notice will be generated. If successful, the system will generate the ticket and receipt for the customer. Subsequently, the system will automatically update the available seat for the next customer.

Customer is prohibited to cancel their successful reservation, unless the request is made through the reservation clerk. Only the reservation clerk has the permission to cancel or update information of the customer.



**Figure 1**

(a) Develop a **written use case** for “Make Reservation” on a Bus Ticket Reservation System.

[5 Marks]

(b) Develop a **Sequence Diagram** to illustrate the flow of activities for “Make Reservation”.

[5 Marks]

**SECTION B: Essay****[40 MARKS]**

Read the case study and answer all the following questions.

**Hostel Management System**

UMP offers a hostel accommodation for their students. To stay at UMP's hostel, student needs to apply it through Hostel Management System. After student fill-up the form, system will automatically calculate his/her or her merit. Then the student needs to print their form and submit it to the hostel office manually for further evaluation. Hostel room will only be given to the student, who has satisfied the hostel requirements (e.g. merit in certain number, CPA > 2.00, involvement at least two (2) community services and, etc.)

After the careful consideration, hostel officer will announce a successful applicant through the system. Student will be able to check their status on their system. Besides that, hostel officer will send an offer letter that generated by the system to whom are offered the hostel. Then, within two (2) weeks, students who are agreed to stay at hostel need to pay the hostel fees, and the proof of payment should be uploaded into the system before collecting their room key. On the hostel registration day, student will collect the key and signature the agreement of staying at the hostel. Student will be eligible to stay at the hostel for one year for each approval.

At the end of the registration day, hostel officer will generate the report of the list of hostel residence to send to the principle of the hostel, for the record.

(a) Construct the Context Diagram for Hostel Management System.

[5 Marks]

(b) Based on your Context Diagram in Question (a) above, produce the data flow diagram (DFD) level 0 for Hostel Management System.

[10 Marks]

(c) Construct a DFD diagram for Process 1.0 (Apply Hostel) from your DFD level 0. This diagram should be decompose until primitive level.

[10 Marks]

- (d) Prepare a Use Case Diagram for the given case study. ( Hint : Your answer from the previous questions may help as a guideline.)

[10 Marks]

- (e) Give **TWO (2)** differences of using structural approach (e.g DFD) and object-oriented approach (e.g. UML approach) in modeling the requirements.

[5 Marks]

**END OF QUESTION PAPER**