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UNIVERSITI SAINS MALAYSIA

First Semester Examination  
Academic Session 2004/2005

October 2004

**CIT504 – Analysis, Design and Management of Information Systems**

Duration : 2 hours

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**INSTRUCTION TO CANDIDATE:**

- Please ensure that this examination paper contains **THREE** questions in **FOUR** printed pages before you start the examination.
  - Answer **ALL** questions.
  - You can choose to answer either in Bahasa Malaysia or English.
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ENGLISH VERSION OF THE QUESTION PAPER

1. (a) The idea of 'triangle for success' in object-oriented software development comprises a process, a tool and a notation.
- (i) Briefly describe your understanding of the idea of 'triangle for success'.  
(10/100)
- (ii) Explain in detail the need for a process.  
(10/100)
- (b) (i) An object-oriented software developer should follow a process which is:
- Iterative and incremental,
  - Use case driven, and
  - Architecture-centric.
- Explain each of the terms above with an appropriate diagram, if necessary.  
(15/100)
- (ii) Is it possible for an 'experienced' software developer to ignore the above process? If your answer is 'yes', explain what other processes an 'experienced' software developer may follow.  
(5/100)
- (c) (i) State the 'Object Think' concept and illustrate it with an example.  
(10/100)
- (ii) Draw a collaboration diagram and a sequence diagram for 'makePayment' in a point-of-sale (POS) system.  
(10/100)
- (d) GRASP patterns describe fundamental principles of object design and responsibility assignment expressed as patterns. Briefly explain the following patterns:
- (i) Information Expert
- (ii) Creator
- (iii) High Cohesion
- (iv) Controller  
(40/100)

2. (a) Briefly describe the major tasks in each of the analysis phase and design phase of an object-oriented software development process.

(20/100)

- (b) You have been assigned to develop an Internet-based eOrders system for a major computer supplies distributor in the northern region of Malaysia. The system should allow individuals to order computer supplies online on a do-it-yourself basis.

Answer the following questions based on the information above:

- (i) Draw a Use Case Diagram with **five (5)** use cases.

(10/100)

- (ii) Draw a Class Diagram with a minimum of **three (3)** classes.

(10/100)

- (iii) Draw a Sequence Diagram for any one use case.

(10/100)

- (c) (i) Describe various ways that knowledge management systems could help firms with sales and marketing or with manufacturing and production.

(10/100)

- (ii) What are the **three (3)** different regimes that protect intellectual property rights? What challenges to intellectual property rights does the Internet pose? Explain briefly.

(10/100)

- (iii) Why is the World Wide Web so useful for individuals and business? Under what conditions should firms consider Web hosting services? Explain briefly.

(10/100)

- (d) Supply chain management is less about managing the physical movement of goods and more about managing information. Discuss the implications of this statement.

(20/100)

3. (a) (i) What is outsourcing? (5/100)
- (ii) Under what circumstances should it be used for building information systems? Explain briefly. (5/100)
- (b) Some have said that the best way to reduce system development costs is to use application software packages and fourth-generation tools. Do you agree? Why **or** why not? (20/100)
- (c) Why is there such a high failure rate among enterprise application implementations and business process reengineering (BPR) projects? What role do information systems play in the success or failure of mergers and acquisitions? Explain briefly. (10/100)
- (d) Medical Online Bhd. is a highly regarded company located in Kuala Lumpur. The company has a network system in place, linking many of its business operations. While the firm feels that its security system is adequate, the recent addition of a Website has been an open invitation to hackers. The management of this company requested a risk assessment report, in which risks assessment is performed and the risks effects to the firm are identified.
- Assume you are the company IT manager. Describe how do you provide the intended report as well as recommending several security steps that can be performed.
- Hints:**
- You can identify several potential exposures with the existence of the Website.
  - You should also identify potential threats to the company, and estimate the loss.
  - Then, give suggestions or recommendations to increase the security measures to secure the company digital knowledge or information.
- (50/100)
- (e) What strategies can be used to make implementation of global systems more successful? Explain briefly. (10/100)